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THE RUBBER CLUB OF AMERICA.

THE annual dinner of the Rubber Club of America, recently held in New York, and described in some detail elsewhere in this issue, was such a successful function—in the large attendance, general atmosphere of good fellowship and in the excellence of the addresses—that it may with propriety serve as a text for a brief dissertation on the general idea and purposes of the club.

This club was organized (under the name of the "New England Rubber Club") fourteen years ago, for the purpose of promoting acquaintance and a feeling of fellowship among the members of the rubber trade. As the American rubber industry had at that time completed almost two-thirds of a century, obviously the time was ripe for such an organization. Its original purpose was solely a social one, and it has remained distinctively a social organization practically up to the present time—its meetings consisting of two annual events—a mid-winter dinner and a mid-summer outing. Both of these functions have always been marked, not only by a large attendance, but by the heartiness and zest with which the members have responded to the opportunities of social enjoyment which they afforded. In July, 1909, the name of the club was changed to the "Rubber Club of America," in order to make it national rather than local in its character, and to permit the admission of many members of the trade outside of New England who wished to join. Its strictly social character, however, was not changed.

But great developments have taken place in the American rubber industry in the last fourteen years. The annual product of manufactured rubber goods has during that time increased over 100 per cent. in value. In 1900 it was $100,000,000; in 1912, $220,000,000. And many of the leading members of the club have felt that this organization was fitted to do more than simply bring its members together twice a year in friendly fashion to share an inviting menu; they have felt that this organization could undertake and successfully accomplish serious work that would be of great and permanent benefit—not only to its members—but to the trade at large; and with this idea in mind at the last annual meeting, in April, 1912, the constitution and by-laws were revised, and an entirely new class of membership called "Firm Membership" was added to the club. The Firm Members were to retain all the social privileges previously enjoyed, but in addition, on the payment of slightly increased dues, were to share in benefits of a strictly commercial and industrial nature; the excess dues—over those paid by other members—to be used exclusively to meet the expenses of any work of a commercial character which, in the opinion of the Executive Committee, might advantageously be undertaken for the general benefit of the Firm members.

Space does not permit to enumerate here the various projects which this inner organization might profitably undertake, but two illustrations will be sufficient to show how wide is its field, and how pressing the problems to which it may apply itself. All the members of the rubber trade—and especially dealers in crude rubber and manufacturers—are interested in the simplification of crude rubber nomenclature. Again, practically all the members of the rubber trade—and especially manufacturers and distributors—are interested in maintaining such a level of duties as will protect the American rubber industry against competition from foreign countries, where labor receives materially lower wages, and where the conditions of living are much below those of the American workman. It will be obvious without further enumeration, that there are many enterprises that could be forwarded easily—and with slight expense to any one man or company—where 100 or 200 men were associated in an organization like the Firm Membership of the Rubber Club, while these same undertakings would be exceedingly expensive—if not impracticable—for any individual.

The Firm Membership class of the Rubber Club has enjoyed a substantial growth during the past year, and is

undoubtedly destined to reach large proportions, for self-interest and trade loyalty must both suggest to men identified in any important way with the rubber industry, that they can profitably co-operate with their fellow rubber men in such an organization, to the substantial advantage of each, and to the greatly increased good of all.

WHAT PARA THINKS OF THE EAST.

DR. JACQUES HUBER, director of the Botanical Museum at Pará, and generally recognized as the foremost South American authority on rubber, paid a visit a year ago to the plantations of the Middle East and devoted several months to the careful inspection of the rubber producing territory in Ceylon, the Federated Malay States and in Java and Sumatra. He was received everywhere with the utmost courtesy, as befitted his standing in the rubber world, and as comports with the reputation for hospitality which the Eastern planters enjoy. They treated him, not as a rival, but as a friend and a fellow-worker in the great field of rubber production.

After his return to Pará he wrote in Portuguese a detailed and comprehensive report of his visit, which has just come from the press, making a book of over 130 pages. This interesting story has been summarized in English, and will be found on another page of this issue.

He concedes that the *Hevea Brasiliensis* has become thoroughly acclimated in the East, and appears to be perfectly at home there, even though the topographical conditions are often quite different from those on its native Amazon. He also finds that the plantation industry has become established on such a sound foundation that nothing is likely seriously to menace its continued success. He concedes that the Eastern planters enjoy two great advantages over their Amazon competitors: first, the vast supply of cheap labor, and second, the large number of trained agricultural experts available for the management of rubber plantations. He finds that the cost of labor in the Middle East is only one-tenth the labor cost in the Amazon basin. When one reflects that Java alone has a population of 30,000,000, the vastness of this labor supply is immediately evident.

Dr. Huber mentioned, in his speech at the banquet which concluded the Rubber Exposition, recently held in New York, the almost absolute lack in South America of trained and experienced plantation superintendents. He dwells on this matter again in his report.

On the other hand, there is one advantage enjoyed by the South American planter, namely, unlimited land. Comparing the free land and very dear labor of South America with the dearer land and cheaper labor of the Middle East, Dr. Huber thinks that the only course for the South American planter to pursue is to place his trees far apart, giving them all the room they need, so that each tree may produce to the utmost. In that way, while the yield per acre would be considerably less than that of the East, the yield per laborer might compare favorably with results obtained in Ceylon and the Federated Malay States. He intimates that the Eastern planter—laboring under the necessity of producing dividends on invested capital—has pushed his trees unduly, and that in consequence these plantations may later be found to require considerable periods of rest. He admits that in the early stages South American plantations could not be expected to yield the large returns of those in the East, but might do so after reaching full maturity.

A HOSE MANUFACTURER STATES HIS VIEWS.

IN a letter which will be found an another page in this issue, a manufacturer of fire hose states his views on the contention of the underwriters that they be allowed to inspect all the ingredients and processes employed in the making of hose. He observes sententiously: "A tube made up of a certain percentage of pure new rubber, mixed with brains and experience will be much more durable than a specification tube composed of laboratory theory and inexperience. To obtain the best hose put the manufacturers on their mettle, and create among them the spirit of competition in quality." His conception is that the best way to get serviceable hose is to let each manufacturer make the best he can in the light of his ten, twenty or fifty years' experience, and then submit the finished result to the officials of the fire department, who from their own experience know what service they should get from hose. If, after testing his offering they reject it, the manufacturer will be content; and if after a thorough test they accept it, then let the manufacturer be held responsible for any defects in material or construction that may develop within the first three years of service.

To state the case briefly, the writer of this letter

believes that fire hose should be judged—not by the various stages through which it may pass in course of construction—but by the actual service it gives when put to use. This seems fair, business-like, and adequately to cover the requirements. Where the results are satisfactory the methods of attaining them are immaterial; and conversely the best theoretical methods in the world are of little value if they do not produce the results. When a man gets into litigation all he wants of his lawyer is to win his case. Whether his brief is written on an Underwood typewriter or a Remington; or whether in addressing the jury he gesticulates with his right hand or with his left, would not to the normal mind appear to be matters of vital concern.

A BOSTON CHEMIST ON SYNTHETIC RUBBER.

LIKE most discussions that arise over the advance of science along the border-land which divides the known from the unknown, where the battle of progress continually rages, the discussion of the problem of synthetic rubber has its flood and its ebb, sometimes engrossing the attention of the scientific world, and sometimes lapsing into a condition of profound quiet. This has been the situation ever since Sir William Tilden, over thirty years ago, made the discovery that rubber could be made out of isoprene.

The synthetic discussion was renewed with great vigor last year by the disclosures made by Professor Perkin, of Manchester, England, in an address given before a body of scientists, showing what marked progress had been made in the solution of this problem by a group of English chemists on one hand, and another group of German chemists, both working independently and both arriving simultaneously at practically the same conclusion.

Dr. Lothar E. Weber, a Boston chemist of recognized authority in rubber circles, contributed a very interesting paper on this subject to the discussions held at the Third International Rubber Conference which took place in New York last September. This paper is produced in full in this issue. Dr. Weber views the situation judicially and dispassionately. He is not disposed to join the chorus of chemists who proclaim that natural rubber—whether from the wilds of the Amazon or from the cultivated plantations of the East—will soon be given its *quietus* by the worker in the laboratory. He recognizes the great triumph of the chemical researchers, in being able to produce rubber as good as comes from the South American forests, but he does not believe that they will be able—for years to come at least—to produce it on a scale that will seriously compete with natural rubber. He combats the theory of those who argue from the success of synthetic indigo to the success of synthetic rubber, showing that the two problems are totally different; stating that, while the producers of synthetic indigo had a perfectly definite task set before them, the composition of indigo being uniform and recognized, producers of synthetic rubber are compelled to work more or less in the dark, because the process of polymerization has not yet been brought under chemical control and is seriously lacking in uniformity; and he contends that synthetic rubber in commercial quantities will not be possible until the polymerization of isoprene is much more clearly understood than it is at present. While he thinks commercial synthetic rubber a possibility of the future, he does not believe that anyone now engaged in the rubber industry will see synthetic rubber in open competition with the natural product.

Of course, the exact time when synthetic rubber will arrive at a commercial basis is only a matter of conjecture, but many competent observers will be greatly surprised if it does not do so within the lifetime of those now engaged in rubber activities. With the tremendous advances made in the solution of this problem during the last three or four years, it does not seem possible that its final success can be many years away.

THE WORLD'S OUTPUT OF MOTOR CARS—WHICH RUBBER HAS MADE POSSIBLE.

IN point of attendance—volume and value of exhibits and artistic setting, the Automobile Show held during the latter half of January in New York, was a triumph. Nearly half a million people attended it. This is not to be wondered at when one considers the tremendous hold that the automobile has taken upon our American life. There are at present nearly 900,000 motor cars in use in this country—practically one car for every 100 people; and there will very soon be over a million cars. The year 1912 added 250,000 cars to those already in use, and the aggregate of the estimates made by the manufacturers for the present year reaches 600,000. Deducting one-third of that as rep-

resenting possible undue enthusiasm, we have 400,000 which probably will come close to the number of new cars that will make their initial appearance on our roadways during the present year. It is quite safe to predict that the million mark will be reached within the next few months.

What a tremendous boon the automobile has been to the world! What an addition to the efficiency and fulness of our modern life! In the first place its contribution to the pleasure and satisfaction of living is incalculable. While some people succumb to the speed-mania—certainly destructive of the nervous forces—viewing the auto, by and large, it has been a great help to the health of the community. What more wholesome for the tired business man, or the woman jaded with her household cares, or social exactions, than to jump in a car for an hour's spin over smooth roads by green pastures and through fragrant woods!

The motor car has not only made it possible for the city dweller to get into the country, but it has made it equally possible for the country dweller to get into the city. It has brought almost the first joy into the farmer's life. In the old days a trip to town, five miles away, behind the faithful but sluggish farm horses was an all-day enterprise—now it is but an incident in the day's activities. Moreover, it has not only permitted the town dweller to make swift excursions into the country, but it has enabled him to live in the country six months of the year. The rocky farm ten miles from town, which twenty years ago was not worth the cost of a new front gate, and was abandoned because it was impossible to extract a living from it, now makes a most wholesome and delightful family home from May till November.

In addition to the great number of pleasure cars already mentioned, one must also consider the commercial vehicle, of which there are now some 36,000, and which are bound to grow in number with tremendous rapidity. These are a boon not only because of their commercial efficiency, but as a humanizing agency. They have done more to relieve the burden of the over-worked draft horse than even the lamented Henry Bergh, who devoted his whole life—his time, energy and fortune—to that worthy cause. It is probably a very safe conjecture that in two decades draft animals will disappear from the streets of our large cities—greatly to the advantage of the animals as well as of the streets.

There is no space here to consider the vast addition that the motor car has made, in one way or another, to our national wealth, or the great army of people who find profitable employment in its construction and distribution.

But all the blessings, many as they are, which have come to the human family from the motor vehicle have all been made possible by the rubber tire. Remove that and those million pleasure cars would rust in the garage, and the motor trucks would soon jolt themselves into the junk heap.

CONCERNING CALENDARS.

WITH the coming of every glad New Year comes the annual crop of calendars. Large and small; plain and ornate; with pictures of fair faces embowered in roses, and severe factory fronts with dense smoke (indicative of extreme activity) rolling up into the sky; with figures large enough to stare one in the face across the street, and so small as to require microscopic research to decipher them—calendars of infinite variety; but all welcome, for they serve a purpose and fulfill a mission.

Occasionally some profound person rises to remark: "Why does anybody get out a calendar? People have been getting calendars for 50 years and they are tired and sick of them." Which is fully as wise as it would be to say: "Why does anyone start a restaurant? People have been eating for 6,000 years and they are bored to death with it." Anything that supplies a constantly recurring want will continue popular as long as the want recurs. The great public will still be asking for calendars in the year 19013, provided those hot internal flames (which the geologists assure us are at work in the bowels of the earth) have not by that time broken through the thin crust, and consumed the printing presses.

Many rubber companies issue calendars every year, others issue them from time to time; but they can all rest assured that, if their calendars are attractive and the figures thereon comfortably legible, none of them will go to waste. To be sure, all the calendar offerings sent to a company may not find a conspicuous place immediately over the president's desk; but, unless they are hopelessly devoid of grace or utility, they will all find lodgment somewhere, on wall or table, where they will continue industriously at their job—Sundays and holidays included—for at least 365 days.

Commercial Possibilities of Synthetic Rubber.

By Lothar E. Weber, Ph.D.

A PAPER READ AT THE THIRD INTERNATIONAL RUBBER CONFERENCE, HELD AT GRAND CENTRAL PALACE, NEW YORK, SEPT. 24 TO 30, 1912.

IT is rather peculiar that although the conversion of isoprene into a rubber-like substance has been known for upwards of twenty years, further progress in this direction has been practically stagnant until recent date. This is not altogether due to lack of effort, but rather to the enormity of the problem. The synthesis of rubber, however, received a new impetus about three years ago when two German chemists, Hofmann and Harries, working independently, succeeded in obtaining almost simultaneously products which gave the chemical reactions of rubber and had certain physical resemblances to the natural

DR. LOTHAR E. WEBER.

product. Since then, considerable progress has been made in this direction and, more recently, stock companies have been formed and capital subscribed with a view to actually placing synthetic rubber on the market. The daily press both in this country and especially in Europe, gave this latest development of synthetic rubber wide publicity, sharing the optimism of the promoters and inventors of the new process, and as a result, the general public and, to a very large extent, rubber manufacturers themselves, have been led to believe that synthetic rubber can in the near future be manufactured in competition with the natural product.

I do not want to give the impression of holding in light regard the magnificent work which has been accomplished by European chemists in their efforts to synthesize rubber. I almost think that a certain amount of chemical training is necessary to appreciate the innumerable difficulties and pitfalls which face the investigator in these fields. These men deserve the profoundest admiration for their painstaking and laborious efforts, but it is greatly to be deplored that the public was given to understand that synthetic rubber is today a commercial possibility, since, if the promise is not fulfilled, the attitude of the public will scarcely be one of admiration.

Synthetic rubber enthusiasts have been very fond of comparing the synthesis of rubber with the synthesis of indigo, asserting that the same fate awaits natural rubber that befell natural indigo. These two problems, however, have very little in common and differ from each other in such striking respects that the two syntheses are not capable of comparison. I should like to take up this comparison in more detail because I think in this way the difficulties which will prevent commercial synthetic rubber becoming a realization during the next few decades can be more clearly shown. Before doing so, however, I would ask your indulgence in attempting to make clear to those of you who are not chemists, the meaning of a rather formidable looking word which is always in evidence whenever there is any mention of synthetic rubber. I refer to the word "polymerization."

We are being continually informed that isoprene polymerizes to rubber and that the process of converting isoprene into rubber is one of polymerization. The process of polymerization briefly stated, is one whereby a large number of small units combine to make a single large unit. It is essentially a process of agglomeration. This process of agglomeration takes place between the molecules, the latter, as you know, being regarded as the smallest amount of substance that is capable of existence. The molecules of isoprene, at least 100 of them, unite and polymerize into one single molecule of rubber. Unfortunately, we have not the least idea exactly how many isoprene molecules go to make one molecule of rubber, and it is probably certain that the natural rubbers themselves vary very widely in the respect of their degree of polymerization. It does, however, seem probable that the higher the degree of polymerization; that is to say, the more the number of isoprene molecules that unite to form one rubber molecule, the better are the physical properties of the rubber. In other words, two rubbers of exactly the same chemical composition, with different physical properties, owe this latter difference to their different degrees of polymerization. It follows then, that a uniform degree of polymerization would be the first requirement for a synthetic rubber.

Unfortunately, the chemist of today is absolutely powerless in determining this degree of polymerization experimentally and, to a certain extent, of controlling it. For instance, it is not possible to go into a laboratory with a quantity of isoprene and polymerize the latter to any desired extent. In fact, we have no means of feeling sure that we can on two different occasions bring about the same degree of polymerization. With the chemical methods available today it would be absolutely impossible to make a product with an assured uniform degree of polymerization, and until this is possible, I fail to see how there can be any possibility of commercial synthetic rubber. The first requirement of such a product is uniformity of polymerization, but as we have no means of determining this uniformity, or lack of it, variations would be bound to occur which would make the employment of such synthetic rubber by the manufacturer altogether too precarious. We all know to what disagreeable results variations in the uniformity of the natural product lead and in the latter case the possibilities for uniformity are infinitely more favorable than in the case of the synthetic product.

Now let us briefly consider the case of indigo. Here the problem was to manufacture an article of absolutely definite characteristics and properties. It undoubtedly required a vast amount of chemical skill before the composition of indigo was determined, but once this important feat having been accomplished, the chemist had a definite conception of the substance to be synthesized. Furthermore, there could never be the least doubt as to whether the investigator had actually succeeded or not in obtaining indigo. It is the work of only a few moments to be able to definitely decide whether a product is indigo or not.

In the case of rubber the state of affairs, as we have seen it, is totally different. In the first place, the methods of polymerization are still in their infancy; we have no means of controlling its magnitude, or of assuring its uniformity. The chemical methods of today are wholly insufficient for the solving of this problem.

Synthetic rubber enthusiasts have either overlooked or ignored with supreme indifference the very important fact, that in the year 1916 the price of raw rubber must of necessity drop very considerably. It is estimated (and from all accounts the estimate is a conservative one) that by the year 1916 the Eastern plantations alone will be able to produce 100,000 tons per year, although there are two factors which have not been taken into account in making the estimate, which might have a very serious effect on the future of the plantations. These two factors are: first, diseases of the trees, and secondly, the labor problem.

The chances of the trees becoming infected either with a disease or insect pest is probably very small, as the bulk of the plantations are under very careful supervision, and special precautions are being taken to prevent such an occurrence. The labor question seems to be of more serious consequence, as the Malay coolie is of a rather independent nature. Nevertheless, it is highly probable that the estimate is not exaggerated. Even today one repeatedly hears statements being made that the plantations that are producing rubber could, if necessary, put their product on the London market at 25 cents per pound. This is possibly slightly exaggerated, but not very much so. One has only to look at the dividends now being paid by some of the Eastern plantations to realize that there is a certain amount of truth in this statement. As things stand today, supposing it were possible to market synthetic rubber at 50 cents a pound in great quantities, the competition with plantation rubbers would not be very noticeable, as their output is relatively small; but in 1916 the case will be quite different. Even supposing that the demand for rubber keeps on increasing, the plantations will still be in a position to supply at least half of the demand. There are, furthermore, enormous opportunities for the plant physiologist in the cultivation and production of rubber. So far very little has been done in this direction, as the plantation industry is still in its infancy; but it seems more than probable that careful experimentation will enable means to be devised whereby the yield of rubber per tree can be materially increased.

In the case of the sugar beet this increase in the yield has been accomplished with surprising success. It has been possible by careful methods of cultivation and selection of the most advantageous conditions of soil, to raise the yield of sugar in the beet from 3 to 18 per cent. Undoubtedly, in the case of rubber, the problem is more complex than in the case of the sugar beet, but this field of investigation is still waiting for the pioneer, and I cannot help feeling that the possibilities are indeed large.

It must be seen, even on the supposition that synthetic rubber were today a commercial possibility, and that an article could be produced equal to the plantation product, that the struggle for commercial supremacy would necessarily be a fierce one, with the advantage very much in favor of the plantation product.

In the case of indigo, the synthetic product had practically no competition to meet whatsoever. The production of natural indigo had been carried out under the crudest possible fashion, and the methods of obtaining the dye from the plant were even more crude. For some extraordinary reason, although the production of this dye stuff was of such extreme value to the textile industry, it always remained in the hands of the ignorant natives. Had the same amount of energy and skill been applied to the indigo plant that is now being applied to plantation rubber, the victory of synthetic indigo would probably still be in doubt. It must be granted that the commercial synthesis of indigo was the crowning technical achievement of the nineteenth century, but it must also be acknowledged that its fight for supremacy over the natural product was materially aided by the shortsightedness of indigo planters. Rubber planters, on the other hand, have been keenly alive to the large possibilities which are to be derived from scientific methods of cultivation and production, and they have got such an infinite lead over the efforts of the synthetic chemist, as to be in little danger of being vanquished for many decades to come.

I hope I have not been altogether unsuccessful in making plain some of the difficulties that confront commercial synthetic rubber. With our present-day chemical methods it would be well nigh impossible to assure a uniform synthetic product. Within the next few years the Eastern plantations will be in a position to supply half the demand for rubber, and accordingly would be in a position to wage a very stubborn fight against any synthetic product. Finally, it seems more than probable that scientific investigations will enable the planter to increase the yield of rubber per tree, and thus put him in a still better position to combat the synthetic article.

I do not want to make such a rash statement as to assert that synthetic rubber will never be a commercial possibility, but I should be greatly surprised if there is anybody engaged in the rubber industry today who will have the opportunity of seeing synthetic rubber in open competition with the natural product.

GERMAN ANALYTICAL RUBBER PROGRESS.

Several interesting booklets have been received from the Henriques Laboratory, Berlin, dealing with subjects which have been recently dealt with by that institution.

One of these, reprinted from the "Gummi-Zeitung," describes a process for defining the nitrogenous sub-components and impurities in crude rubber.

In a reprint from the "Tropenpflanzer," Dr. Frank's views on synthetic rubber are reproduced. These had been dealt with in THE INDIA RUBBER WORLD of September, 1912, page 580.

Another reprint from the "Tropenpflanzer" contains a paper by Dr. F. Wohltmann, Director of the Agricultural Institute of the University of Halle, upon "South American and East African Rubber Soils." This interesting paper reproduces the analyses of clays from the left and right banks of the River Acre; as well as from Tanga and Longusa, Ngambo, Magunga, Morogoro, and other East African points.

THE WORLD'S EFFORTS TO RAISE COTTON.

It is very natural with a staple like cotton, which is so necessary to the welfare of mankind, that every considerable government should seek, if possible, to raise its own supply. The various European governments have long tried to devise methods of being independent—to some extent at least—of the American product. One-third of the world's supply of cotton comes from Egypt and India; but notwithstanding this fact, England has made constant efforts to develop a profitable production of cotton in various other territories under English control, and Russia has expended a great deal of effort in the attempt to produce cotton profitably in Central Asia. These various attempts have been successful as far as producing cotton is concerned, but they have not been altogether successful in producing it at a figure that can compete with the cost of its production in the United States; and when the price of cotton in our Southern States has been low these rival efforts in other countries have been attended with much discouragement.

In the last 25 years the average export price of cotton from the Southern States has been 9.3 cents—the lowest price was 5.5c. in 1899, and the highest price during the last 25 years was in 1910, when the export price rose to 19.7 cents.

FOURTEENTH ANNUAL BANQUET OF THE RUBBER CLUB OF AMERICA

AT THE WALDORF-ASTORIA, NEW YORK, JANUARY 23, 1913.

The Fourteenth Annual Dinner of The Rubber Club of America.

THE dinner of the Rubber Club of America, held at the Waldorf-Astoria, New York, on the evening of January 23d—which, by the way, was the fourteenth annual gathering of this kind in the history of the club—was a thoroughly successful function, highly creditable to the officers and to the members of the committee which had the event in charge, and altogether enjoyable to all who attended.

In the first place the attendance was large—190—which, considering the scattered nature of the club's membership—some from New England, some from the Middle States and many from distant points in the West—is a very satisfactory number out of a total membership of 320.

Another feature that contributed to the enjoyability of the occasion was the fact that so many members availed themselves of the social opportunities afforded by the preliminary reception. The large reception room was well filled a half hour before the dinner by members who utilized the occasion to exchange greetings with old friends, and to make new acquaintances—often with men whom they had long known by reputation but never before personally met. Incidentally, this preliminary reception afforded the out-of-town members a chance to acquaint themselves with the fact that the word "Bronx" does not stand for a geographical location, but rather, in a preparatory way, for a state of mind.

At the appointed hour—or within a reasonably few minutes thereafter—the diners filed into the big Astor gallery and took their seats. The menu, which is given below, was exceptionally well chosen, and showed the handiwork of connoisseurs, and it stopped just at that golden line between just enough and not too much. The dinner was accompanied by a wealth of music. There was an excellent orchestra, and in addition a singing leader with a robust voice. But these were only incidents; there is probably not another club in the country that can boast of so many fine baritones, exceptional tenors, and powerful basses. As a consequence there was a full hour of voluminous harmony, which seemed to make even the waiters temporarily forget their chronic grievances.

MENU.

Huitres Smith Island

Tortue verte claire

Radis Olives Céleri Amandes salées

Médaillon de bass, sauce Margery
Tomates et concombres

Champignons frais à l'Eugenie

Mignon de filet de boeuf, sauce Colbert
Petits pois à la Paysanne

Poitrine de pintade à la Hongroise
Salade romaine à la Francaise

Pommes de terre farcies, sauce de vanille
Petits fours Fromages assortis
Café

Sauterne

THE WALDORF-ASTORIA le 23 janvier, 1913

The after-dinner addresses covered a variety of themes, and covered them in an interesting and informing fashion. The speaking moved very briskly under the influence of President Hood, whose introductions were models of what introductions should be—brief, direct, and just enough to present the speaker properly to the audience. The president's own address was exceedingly practical and business-like, being largely concerned with the marked developments in the work of the club during the past year. It was listened to with deep interest by all the members of the club and made a specially favorable impression on those who are most interested in the club's expansion and growing usefulness.

After everybody—but the most hardened laggards—had finished his coffee, the president arose and when quiet prevailed, proposed the following toast: "Let us all stand and drink a toast to the President of the United States." His request was carried out with a heartiness and unanimity that indicated that the asperities of the recent election had been entirely forgotten. When the diners were comfortably settled in their seats again Mr. Hood began his address.

THE ADDRESS OF PRESIDENT HOOD.

Fellow members and guests.—At the dinner held in this room a year ago I mentioned my belief that a club, to be permanent, must be useful. My talk this evening is intended to give you a short resumé of the past and some suggestions for usefulness in the future.

In February and March last year there was a very serious agitation in Washington to place an import duty on crude rubber, because additional income was needed, and one line of argument in support of this agitation was that crude rubber was used in automobile tires; automobiles are a luxury, and luxuries should be taxed.

A proper acknowledgment should be made and deep appreciation should be shown the New York members of this club, several of whom gave a large part of many days in preparing statistics and *data* to refute the insidious arguments of certain Congressmen, and many more days were cheerfully given to the preparation of a brief for the Ways and Means Committee. This brief convincingly showed that crude rubber is a necessity and not a luxury.

For this unselfish work, done by a few, but benefitting every user of crude rubber and manufactured rubber, they have our grateful and hearty thanks.

At last winter's dinner I urged a revision of our constitution and by-laws, in order that your directors might have the power to be useful in case an opportunity arose for possible usefulness. The old constitution provided only for sociability. And at the annual meeting of the club, held last April, the new constitution was unanimously adopted. The directors approved a vote delegating to a small executive committee of five the authority of the directors during the interim between directors' meetings, and at last there was a responsible body small enough and so geographically located that they could meet and consider the many problems and the many opportunities for usefulness.

And, fellow members, after attending many executive meetings—of which the president is a member only *ex-officio*—I fell that this club has arrived at another mile-stone in its career where it should desire to do much more.

The unselfish work of your Executive Committee, and especially its chairman, and the hours and days of work given by your secretary and assistant secretary, are deeply appreciated by us all.

But it is too great a favor to ask of these men, to do our

work for us without giving them the tools to properly work with.

Last year the club had a membership of 254 members, including active and honorary. This year there is a total membership of 321, of which 36 are firm members, 228 active members, and 57 associate and honorary members. It has been estimated that there are over 400 firms eligible for firm membership, and your Executive Committee have many assurances of more firm members as well as active members. New firm membership does not begin until the beginning of the next fiscal year, April 1 next.

GEORGE B. HODGMAN, VICE-PRESIDENT.

FREDERIC C. HCOD, PRESIDENT.

HAROLD P. FULLER, SECRETARY.

The opportunities for usefulness of the club that are purely *pro bono publico* are so many and so varied in kinds that I can mention here only a few.

How many of us understand the magnificent work of the *tire group* of the Motor & Accessories Manufacturing Association—an extremely husky and financially strong association—and the Druggists' Sundries Association, the Reclaimers' Association and the Mechanical Association? The mainspring of each of these groups is crude rubber, and our club, the *pater familias* of the crude rubber industry associations, should co-operate with and cordially supplement the work of all of these rubber associations.

Isn't this recital sufficient to show clearly the needs of the club for more support, both numerically and financially, on the part of all firms dealing in rubber? And is it strange that your president strongly urges the employment of a paid secretary, and strengthening of the power of the next president and next executive committee by giving them the facilities for executing the work considered advisable or expedient by them, instead of forcing them to do their own work at great sacrifice of energy and time? And because your Executive Committee is composed of men representative of the best of us, and consequently carrying great responsibilities, sometime the work itself is sacrificed simply because of exhaustion of physical energy and lack of unemployed hours.

The adage, "If you want a thing done get a man who has all he can do," applies to this club. But such men must have tools to do with.

Just a few words on another association—the National Boot & Shoe Jobbers' Association—which has a rubber section. Some of us know that the simple meeting in open conference has tended to stop the secret misrepresentations of quality which are usually the twin sister of price-cutting and other unbusiness-like and wasteful methods. But their traffic departments and credit departments alone justify the existence of the association.

Louisiana has lately passed a pure-leather-shoe law which goes into effect next July, and requires that all leather shoes sold in Louisianna shall be made of nothing but pure leather. This is not quite so ridiculous as if a State passed a pure rubber shoe law, a pure rubber tire law, a pure rubber belting, hose, water bottle and clothing law. But who knows, now that four States here have passed or are considering passing laws requiring the date placed on certain kinds of rubber goods sold in those States, but that some States will pass a pure rubber law and imagine they are doing good similar to a pure food law? We must have some organization to meet these issues, and there are enough real issues now to keep us all busy without suggesting imaginary issues.

Now another viewpoint:

The sales of rubber goods manufactured per annum, variously estimated, figured at prices received by the manufacturer, are $225,000,000 to $250,000,000. Of this amount in 1912 the pneumatic tire business was over $100,000,000—a development for the most part of the last ten years.

The United States and Canada consume over one-half of the world's production of crude rubber, and estimates give the consumption in crude rubber for 1909 at, say 30,000 tons; while in 1912 the consumption in this country and Canada is estimated rising 50,000 tons. Of course this increased consumption has come principally from the manufacture of tires, but rubber footwear has increased also from about forty millions in 1902 to fifty millions in 1912.

How fortunate for us all that rubber plantations have increased the supply of crude rubber! Estimates of Pará plantations production also help us to view our opportunities for usefulness. In 1910 the plantations produced about 9,000 tons; in 1911 they produced over 18,000 tons, and in 1912 they produced over 28,000 tons. The estimates for 1913 vary with different people from 38,000 to 40,000 tons, while most people agree that in 1915 the production will exceed 65,000 tons, far exceeding the production of wild rubber from Brazil, especially when it is remembered that statistics for Brazil are figured on green weight, and, for comparison with the Plantation group, must be cut down an average of 20 per cent. for the wild rubber shrinkage.

And, fellow members, think of upwards of 50,000 tons of rubber being bought by manufacturers in this country, valued at somewhere about $125,000,000, and the various kinds of rubber not being even named or having a definite description. This nomenclature of crude rubber has been a difficult problem and

has been the subject of discussion in many an executive committee meeting, and of many patient hours' conference on the part of a sub-committee appointed by your president. It is gratifying to report that we are all in harmony and agreements have been reached on three points.

1. A uniform contract for the sale of crude rubber.

2. An arbitration clause in the contract. But this will be a subject for further talk this evening.

3. A definite nomenclature; that is, a definite name shall be given which shall have a definite meaning.

The first difficulty arises over preparing the name and definite description of the kind which the name shall mean. From a certain river in the Amazon come several kinds of *Hevea* rubber which must be named and described. For example "Up-river Fine," "Up-river Weak Fine," "Up-river Medium," "Up-river Seconds Medium," "Up-river Coarse," "Up-river Nuggets," etc., etc.

The dealers in New York trade constantly with each other and they understand, as between themselves, what they will accept as a delivery on a contract under a name, notwithstanding there are often two names for the same thing, as, for example, "Seconds Medium" and "Mixed Pará"; and there are often two different sortings of rubber under the same name, as, for example, "Up-river Coarse"—some take out the nuggets and others leave the nuggets in.

It all seems so extraordinary that such a condition can exist that the mere recital of such customs, especially when we remember that rejected lots often give an opportunity for unscrupulous dealings, should awaken us all to the necessity of a correct nomenclature of kinds.

And then think of the numerous kinds of Plantation rubber masquerading under the names of "First Latex Crepe," "Smoked Sheet," etc.

The Rubber Club of America can be and should be able to accomplish this nomenclaturing of crude rubber and bring about an integrity of quality which works for a standardization of the principal item in the goods we manufacture. And, gentlemen, what helps the whole helps each part, and this is true of the goods we manufacture and of the members of this club.

We were fortunate in having a Crude Rubber Exposition last fall. The Brazilians were particularly patriotic in sending the best collection of representative kinds of rubber ever exhibited and ever gathered together. It is a pity that representative kinds could not be filed in a museum for reference and study. Each kind was named, but, unfortunately, not all the poorer qualities of each kind were exhibited.

Beautiful exhibits of plantation rubbers were shown, and the public spirit of the exhibitors was always in evidence.

Two things interested me the most. First, the conferences. Many carefully prepared and intelligent papers were read, and much attention was paid to the solution of the nomenclature problem and to the adoption of a standardized method of coagulation. The conferences will all work for the integrity of the industry.

The second thing was the exhibition of old, used rubber scrap. I think there were 168 different kinds exhibited, all properly named and described. This nomenclature of rubber scrap was accomplished by the Reclaimers' Association, simply by the adoption by them of a circular describing the kinds of scraps and the conditions of packing and sorting. Can anyone say that their action in adopting the nomenclature has not worked for the integrity of their business, for economical manufacture and for the benefit of the whole industry? And especially for the protection of the honest dealer as against the "piker"?

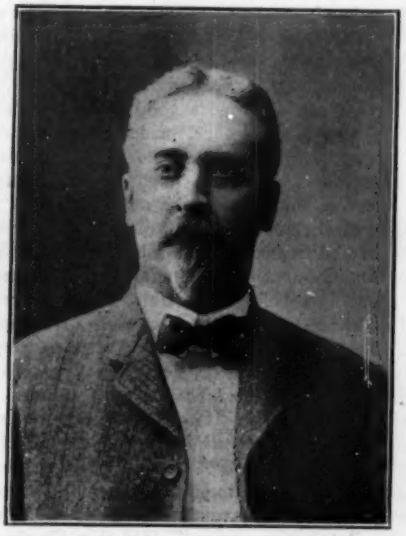
Thus, a crude rubber nomenclature will work for the benefit of the industry, and will benefit each person engaged in the rubber business, as a dealer, manufacturer or user. The values of an exact nomenclature will seek their proper levels; and what pleases me most is that all the large dealers in crude rubber in New York City agree that there should be a proper nomenclature and seem more keen for an adoption of it than even the manufacturers, whom it will benefit most.

But, as I have mentioned before, the only reason it is not accomplished is because of the lack of tools to properly do the work.

London does its business in crude rubber better in some ways than New York. As this country uses more than half the world's production, why should not New York have more than half the "say"? If any action can increase the integrity of the industry right here in New York, it is the firm belief of your president that it will tend to build up the importance of New York as a center of the crude rubber industry, just as New York is *the* city of the world today in so many lines of industry, and just as we all fervently hope the United States of America will be in *all* lines of industry.

J. FRANK DUNBAR, TREASURER.

WM. E. BARKER, DINNER COMMITTEE.



CHAS. A. COE, CHAIRMAN DINNER COM.

After the applause that greeted President Hood's address had

died away, he presented the first invited speaker of the evening as follows:

"There is no name more familiar to the rubber trade than 'Goodyear.' Charles Goodyear left us a heritage, not only his name, but his patents and his accomplishments. Contemporaries seldom do true justice, for historians have a clearer perspective, and it is not strange that the movement for a memorial to Charles Goodyear is fast becoming a reality.

"I have the honor to introduce Professor Franklin W. Hooper, the director of the Brooklyn Institute of Arts and Sciences."

PROFESSOR HOOPER'S TRIBUTE TO CHARLES GOODYEAR.

I speak with great hesitation, realizing as I do, not only the importance of my theme, but the fact that I am speaking to representatives of the great rubber industry of the world. You represent an industry, the raw material of which amounts to $250,000,000 a year; while its manufactured product exceeds half a billion a year in value. It is an industry, moreover, whose applications to our modern life have increased with tremendous rapidity during the last two or three years. And yet, if it were not for one man this great industry would not exist, and neither you nor I would be here tonight. Therefore, we must contemplate, not only with a profound personal interest, but with most thankful hearts, the life of this great American.

Charles Goodyear is at once the greatest American discoverer, the greatest American inventor, and a man whose character and career place him in the foremost rank of men in all time. His father before him had shown the genius of the inventor as a hardware merchant in New Haven where he made and sold for the first time in this country farming tools made of steel. Charles Goodyear's education was very largely received in his father's store. Shortly after he reached his majority he established for himself a hardware store in Philadelphia where he sold for the first time goods manufactured only by American industry. In a few years he built up a large and successful business, a business which he sold to others and which was the foundation of the present large hardware business of Philadelphia. But Charles Goodyear, like Louis Agassiz, was not content simply to make money. He had within him an unquenchable desire, an all impelling purpose to be of some great service to humanity. He would have been glad to be able to acquire an education and to enter the ministry, but failing that he sought some material means of benefiting his fellowmen.

He had observed a good deal of crude rubber, in the use of a poor kind of shoe, made in the tropics, worn by very poor people. He conceived the idea that this material, existing in enormous quantities, might be made of the greatest possible service, not only in the manufacture of shoes and of wearing apparel, but of boats, sails and of life-saving apparatus. He studied its qualities, its solubility, and he sought to make out of the crude rubber a material that would resist ordinary heat. He made machinery with which layers of crude rubber of varying thicknesses could be produced. He applied nitrous fumes to the surfaces of the films so that they were less easily melted by heat. He mixed magnesia, lime, oxide of lead, and many substances with the rubber in most intimate ways, and was able to manufacture fabrics very beautiful in appearance, but nevertheless fabrics which softened and decayed in warm weather. For ten long years, 1834 to 1844, he experimented, giving his entire time and energies in his search for some means of converting rubber into a permanently usable and useful article.

But it was not until 1844 that Charles Goodyear discovered, during the course of his researches, that by heating crude rubber, mixed with sulphur, to a high temperature it was converted into vulcanite—the rubber of modern commerce. This discovery was the triumph of long years of the most painstaking and most manifold experiment during which he had suffered in health, had experienced extreme poverty and privation, and through the failure of others to meet their obligations had been involved in debt, and according to the custom of the time had with unbroken spirit endured the hardships of the debtors' prison in Philadelphia.

The discovery once made, Goodyear gave the remainder of his life, 1844 to 1860, to the invention of ways in which the vulcanite could be used. At the time of his decease it had been applied to some two hundred different and distinct uses, and of these over ninety per cent. were the direct product of his inventive genius. In fact, there has been since his decease no important invention for the use of rubber that was not known to Goodyear. The rubber tire which now consumes so large a part of our annual production is but a modification of the rubber tube which Goodyear made. Throughout his entire career he entered into no manufacturing business with the ulterior motive of making money. He invented the machinery with which more than two hundred vulcanite products were manufactured and used the income from his patents and from his sales of manufactured goods in further invention and in making further machinery for manufacturing.

In 1851 he exhibited at the Crystal Palace, at Sydenham, many products of his skill and invention, and in 1854, at the International Exposition in Paris, he was not only awarded the Gold Medal of the Exposition, but he also received the decoration from Napoleon III. of the Legion of Honor—the highest combined compliments that have ever been paid to any American at an International Exposition in Europe.

But in Europe, as in America, Goodyear was unfortunate in making collections due to him, was unable to meet his notes, and the honors conferred by the Exposition and the Emperor were delivered to him in the debtor's prison in Paris.

Charles Goodyear, I have said, was the greatest of American discoverers and inventors. But great as was the work of Goodyear as discoverer and inventor, the character and career of the man are even more remarkable and exceptional. He was simple, earnest, patient, long-suffering, heroic, magnanimous, and he gave himself as fully for his fellow-men as any patriot or martyr in any time. And it is especially because of the quality of the man, added to his pre-eminent discovery and inventions, and to his great and lasting services that a suitable memorial to Charles Goodyear should be erected for the instruction and the uplifting of all the generations of men that follow.

A few years after the decease of Charles Darwin, I visited for the first time the great Natural History Museum at South Kensington. The buildings were new and stretched several hundred feet on either side of the main entrance. I had been a student of Charles Darwin for twenty years and had come to feel the power of his simple life—the far-reaching value of the theory of evolution as a mode by which the Creator had brought the universe to its present condition. I felt then as I feel now that Charles Darwin was the greatest genius and benefactor of the nineteenth century. With this feeling I entered the vast vestibule of this Museum and there unexpectedly found resting on the first landing of the main stairway, in the place of honor in the entire Museum, the statue of Charles Darwin. England and the entire world had ridiculed this student of nature, and yet within a third of a century of the date of his great work on the "The Origin of Species," the whole world had recognized the character of the man, the value of his great contribution to the sum of human knowledge, and had honored him by giving to his statue a place of supreme worth.

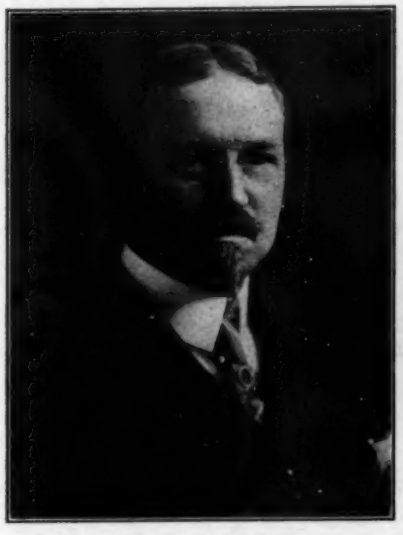
Our country is soon to erect on the banks of the Potomac a beautiful temple, inspired by the genius of Greek art, in memory of Abraham Lincoln, and in that temple will stand alone, in enduring bronze, the strong figure of the savior of his country and of her institutions.

So likewise in the City of Washington, as one of the group of buildings destined to become our great National Museum,

most comprehensive in scope, most useful in purpose, most commanding in plan, will stand a museum in memory of Charles Goodyear; a museum in which may be placed, not only the history of the discovery and of the manifold inventions of Charles Goodyear, but in which may be exhibited all of the inventions, examples of manufactured products, illustrations of the many and great uses to which vulcanite has been put in these latter days. And in the grand vestibule of this Museum shall stand a statue of Charles Goodyear, the greatest American discoverer and inventor, a man whose character places him with Socrates, with Savonarola and with Abraham Lincoln.

Professor Hooper's eloquent tribute to Goodyear called forth a hearty demonstration of approval. President Hood then introduced the next speaker:

"THE INDIA RUBBER WORLD had a most excellent article on commercial arbitration in its January number, and the article suggested two thoughts to me: First, the wisdom of having our assistant secretary attend our executive committee meetings; and



H. F. J. PORTER.

PROFESSOR FRANKLIN W. HOOPER.

SERENO S. PRATT.

"Second, the realization of the sincere effort and purpose of so many representative men to use peaceful and progressive methods of settling differences by turning on the bright light of open publicity and broad good fellowship.

"We are very fortunate in having with us tonight the secretary of the New York Chamber of Commerce, to talk to us on Commercial Arbitration. I have the pleasure of introducing Mr. Sereno S. Pratt."

MR. PRATT ON COMMERCIAL ARBITRATION.

Arbitration has seven distinctive, important advantages for business men in the settlement of their commercial disputes. These advantages are:

Speed, Economy, Efficiency, Privacy, Simplicity, Adaptability and Good Will.

1. SPEED. Nothing is more destructive to justice and, therefore, dangerous to civilization, than the law's delays.

In saying this, do not interpret my language as an attack on the courts and the legal profession. In spite of all criticism, reasonable and unreasonable, to which they have been subjected during the past hundred years, it is impossible to measure the length and breadth, the height and the depth of the services they have so splendidly performed for the maintenance of law and order in this country. But justice is inherently slow. Even the mills of the gods grind slowly, though they grind exceeding fine.

Commercial arbitration as proposed by the Chamber of Commerce does not undertake to abolish courts, and it is no attack upon the legal profession. Its practicability is demonstrated by the fact that it seeks the co-operation of lawyers, and it has the commendation of the judges. The best practice of the law today is directed to the avoidance of litigation rather than to the trial of actual cases of litigation; and a lawyer may well advise his client to submit his dispute to arbitration in any case that is especially adapted to trial by arbitration. One of the proofs of the practicability of this system is that lawyers themselves have submitted disputes to it; and we have on file a letter from a leading firm of lawyers thanking our Arbitration Committee for its offices of conciliation in bringing about the settlement of an important dispute without trial.

This arbitration system does not undertake to settle cases which ought to go to a court of law; for instance, cases which involve intricate points of law. The cases which it is willing to take are questions of fact having some real relation to the conduct of business.

Court proceedings are necessarily subject to many inevitable delays, and in addition, the normal course of justice is often defeated by various legal expedients by which litigation can be protracted.

In commercial arbitration there is no opportunity for such causes of delay. Quick action is the rule from which there is no exception. There is no succession of postponements, adjournments or appeals. The procedure is so simple that a decision is speedily reached. In one case tried in the Chamber of Commerce the issue was joined, the submission made, the arbitrator appointed, the trial held, the decision rendered and the judgment paid, all in one week, and both the successful and the defeated party to the case thanked the arbitrator for his courtesy and good judgment.

2. ECONOMY. The time saved by arbitration means, of course, expense avoided. Controversies are to business what friction is in a machine, or waste is in the application of power. By reducing the amount of friction and waste involved in commercial disputes, arbitration increases the efficiency and, therefore, the economy of business. In addition to this indirect gain, the direct costs of arbitration are very small.

In the Chamber of Commerce each party to the dispute is obliged to deposit $60 with the clerk of the committee, and this $120 commonly covers all expenses of the litigation. It is possible that for less than $100 a dispute involving tens of thousands of dollars may be settled in a week's time and without ill feeling—a dispute that if carried into the courts would cost thousands of dollars, a year or more of litigation and, it may be, a lifetime of hatred.

3. EFFICIENCY. Commercial disputes necessarily involve questions of commercial usage, the quality of goods contracted for, the interpretation of trade agreements, etc. Equitable settlements of these disputes call for a knowledge of trade terms and customs. Imagine what a reputable merchant risks when he submits an issue of this kind to a jury made up of men who it may be do not know the difference between a bill of lading and a *billet doux*.

Under the Chamber of Commerce plan one can choose an arbitrator, or arbitrators, from a list of 200 to 300 of the best-known business men of the city—men who have achieved success in their lines of trade, and who know the rules, the customs and the language which prevail in the markets of the world. This makes for high class efficiency.

4. PRIVACY. Publicity is absolutely necessary to the administration of justice in a court of law. There can be no star chamber proceedings in the operation of justice in these modern days.

But, publicity, which is a necessary safeguard in the courts, is not necessary in the conduct of a case voluntarily submitted by disputants to arbitration. In an arbitration committee, a business man may secure the guarantee of justice, with the additional and great advantage of privacy.

Every business man, and certainly every credit man, understands what losses may be sustained through the publicity given to litigations. This is one of the reasons why the National Association of Credit Men are establishing arbitration tribunals in their organization. So greatly does litigation often impair credit that the time may come when one of the questions which the commercial borrower may have to answer before obtaining loans will be: "Do you make a practice of submitting your differences to arbitration?"

A striking illustration of the value of privacy is afforded by a recent case tried in the Chamber of Commerce between a business man who disputed the charge made by his attorney for professional services. The lawyer desired the privacy of arbitration because his professional ability was attacked. The merchant desired the privacy of arbitration because the credit of his concern was involved in the proceedings.

5. SIMPLICITY. No elaborate machinery is necessary for the conduct of arbitration, and this is one of its great merits, for it would inevitably break down if arbitration simply substituted a private court for a public court; and undoubtedly this was one of the reasons why the former Court of Arbitration failed of entire success. That court was established because the earlier arbitration method of the Chamber had in the course of time become inadequate to the changing requirements of business, and yet that early method which was established by the Chamber at its first meeting in 1768, and which lasted for nearly a century, was infinitely better than the Court of Arbitration which followed it, because it worked on a simple rough-and-ready plan, and hundreds and probably thousands of cases were decided by it. I recently discovered in the New York Public Library the minutes of the Arbitration Committees of the Chamber from 1779 to 1792, and they make a large manuscript volume.

6. ADAPTABILITY. The present method of arbitration of the New York Chamber has the merit of adaptability to varying conditions and classes of cases. For instance, it makes it possible for the two parties to have one arbitrator, or three arbitrators, or, in certain important disputes, to have the entire Committee on Arbitration sit as arbitrators.

The system is adapted not only to disputes between members of the Chamber, but also to persons not members; and it can settle controversies between citizens of different countries. It will interest you to know that the first case tried under the present rules was between a manufacturer in England and a contractor in New York; and the impartiality of the proceedings is demonstrated by the fact that the American arbitrator decided in favor of the English manufacturer. Moreover, as the system works, it serves not only to decide definitely submitted disputes, but it also serves to bring about settlements by conciliation without any trial whatever. This is even better than arbitration. Scores of disputes have already been brought to an amicable settlement through the conciliatory offices of the Chamber's Committee on Arbitration which, without that method of mediation, would inevitably have gone to litigation. In one case between two of the most noted merchants in the city, the dispute involved the sale of a large amount of merchandise. At first they determined to submit this case to litigation in court. Then they agreed to submit it to the Arbitration Committee of the Chamber, and an arbitrator was appointed. A day was set for the trial, when, by the good offices of the committee, the two merchants were brought together and they settled their dispute privately and without arbitration.

7. GOOD WILL. The conduct of a trial in a court of justice necessarily involves much irritation and bad feeling. It can hardly fail to do this. Even innocent parties to the dispute, as for instance, witnesses who have no interest whatsoever in the controversy, may be irritated by the trial and leave with a feeling of dislike for the administration of justice. Any one who has undergone the ordeal of cross-examination will understand something of what I mean.

Now, in an arbitration proceeding, while bad feeling may not be entirely eliminated, there is nothing in the conduct of the case which involves any breach of courtesy, any violent attack upon the opposing party, any irritating cross-examination of witnesses, any exhibitions of bad temper. This is a very great advantage of arbitration proceedings. In one case at the Chamber of Commerce, the two parties to the dispute, after the decision had been rendered, left the building practically arm in arm, both entirely satisfied that they had obtained justice.

In conclusion let us not claim too much for arbitration, whether applied to international disputes, labor disputes or commercial disputes. Arbitration will not always settle. But because arbitration is not applicable in every case, that is no reason for not establishing arbitration tribunals. There is an international court at The Hague, yet there have been two big wars in Europe during the past year. But shall we therefore abolish international arbitration, when we know that there has been an average of one important dispute between nations settled by arbitration every year in the last half century? Shall we abandon arbitration in labor disputes because in some cases the contending parties prefer the arbitrament of industrial war?

Commercial arbitration is not always the wisest course of action in business disputes; but in ordinary questions of fact arising out of mercantile transactions it is the best, speediest, most economical and simple method of effecting settlements.

The man who consciously or unconsciously feels that he is in the wrong will go to litigation every time, preferring to take his chances before a jury. Arbitration establishes the honest intent of both parties to a dispute; and I believe the time will come when business public opinion will put upon the merchant who refuses to arbitrate his dispute the burden of giving a clear and convincing reason to justify his action.

As many members of the Rubber Club have taken a deep interest in the system of arbitration established by the Chamber of Commerce, Mr. Pratt's clear and concise statement of the scope and advantages of that system was listened to with close attention. At its conclusion President Hood arose and stated

that a friend noting his fondness for limericks, and also his continued persistence for a rubber nomenclature, had sent him the following limerick:

THE OPTIMIST.

Said a cheerful old bear at the Zoo:
"I never have time to feel blue.
If it bores me, you know,
To walk to and fro,
I reverse it and walk fro and to."

"But this limerick," he continued, "also suggests a subject for the next speaker, namely, The Elasticity of Rubber. I have the honor to introduce Mr. Lawrence Sharkey."

MR. SHARKEY ON RUBBER—AND OTHER MATTERS.

Mr. Sharkey proved to be a humorist. He admitted that his only knowledge of rubber was attained through a recent visit to an old friend of his—one named John. He stated that he had called at his friend's place of business and was hardly seated when his friend was called to the 'phone, and he heard him give an order for a certain number of tons of pickles—nuggets—crepe—sheets and blankets. When the receiver was hung up Mr. Sharkey exclaimed: "In Heaven's name, John, what business are you in?" and his friend replied, "The rubber business." Subsequently, John took him over his mill and showed him the processes of converting crude rubber into manufactured product; but the chief impression made on the speaker's mind was of the extreme—not to say excessive—fragrance of the crude material, which he averred "had limburger backed into the corner and begging for mercy." But while Mr. Sharkey's knowledge of the rubber industry was not very profound, it served for a string on which to hang a great many diverting anecdotes, which were not only good, but, better than that, were new; as a consequence of which, when the speaker sat down, he did so amid much applause.

PRESIDENT HOOD.—"Most arguments arise from misunderstanding of the meaning of words used. The meanings of the words 'parsimony' and 'economy' are often confused, but a true definition of 'efficiency' once established clearly will make us all want to 'get together for efficiency.'

"And this is the subject of the talk by our next speaker, who is the Secretary of the Efficiency Society of this city, a society composed of live wires with high voltage. I have the pleasure of introducing Mr. H. F. J. Porter."

MR. PORTER ON GETTING TOGETHER FOR EFFICIENCY.

We do not always realize how natural the processes are through which we are passing when we do certain things. For instance, we do not realize that the natural tendency which is innate in all human beings to segregate in groups is what occurs when a meeting such as this takes place.

Man is a social animal. By that I mean that he has an innate tendency to associate himself with others who have the same common purpose, and this purpose may be either for self preservation or for aggression, or for some common characteristic.

This was the force which operated in early days to form the tribe, and later to bring the tribes together to form a nation, and we see the same force operating in the formation of groups for business and social purposes. Now when these groups form, another action takes place which we do not always recognize as perfectly natural and automatic, and that is the development out of the group of some special personage who is best qualified to lead the movement in hand. Thus, in olden times we had the patriarch or the chief selected for his wisdom or his prowess, and later we had the shrewd or capable business man, or other person best suited to act as leader. This man having been so selected receives the guarantee of the group that they will support him.

After a while another natural process occurs when the group gets so large that the leader cannot keep in close touch with all its members. He appoints others to direct smaller groups into which the larger one is divided, and here the psychology of the situation changes, for these men so appointed are not the selection of the groups over which they are placed, but on the contrary are the selection of an outsider, to whom they are responsible and whose interest they are subserving, and in order that they may get these people to carry out his wishes, they may have to use force instead of depending upon their voluntary service. Now force always develops resistance, and all groups, whether in the past or in the present, as they grow from small to large, pass through this stage and the man once a leader of the smaller group becomes the dictator to the larger. In this way came monarchy, and in this way when the monarch's dictation became too arbitrary the resentment of his people overthrew him.

In this country, up to the middle of the 18th century, our national and state groups were too widely settled to feel the oppression of the ruler who was located in a distant land, but finally the time came when through the importunities of his emissaries they felt the pressure of his rule and they simply threw it off, and came back to the old group association and selected their leader; and this time in order not to make the mistake which their experience had taught them, they limited the leader's term of service, and so we got democracy. At this time we were an agricultural nation and our national, state, county and municipal groups did not require much administrative machinery to carry out their purposes. But about the beginning of the 19th century, there came machinery and the steam engine, and the man whose home was his castle built an adjunct to it, installed machinery and an engine, invited in his neighbors to help him manufacture this or that product, and thus established the industrial group. As long as this group remained small enough for the master workman to keep in touch with all his people, just so long did they all work together in harmony, but when it grew larger and the master workman appointed superintendent and foreman, then came about the psychological change before referred to, and the subordinate officials having no knowledge of the principles of organization and management, applied their self-devised methods, and when the latter did not work, applied force to accomplish their purposes.

So in the growth of industrial groups we have developed small monarchies with dictators in control. This force they applied aroused resistance, and we have allowed the antagonism between employer and employe to grow to such proportions as to constitute open warfare.

It is by knowledge of the psychology of situations such as this that the manager is able, by tact and the application of principles of efficient management which are now becoming known, to hold himself in the relation of leader rather than that of dictator or driver, and maintain such amicable relations between his employes and himself as to keep administrative mechanism operating smoothly.

By efficient management I mean accomplishment with the least amount of effort, for effort causes friction and friction means cost, and when a manager can succeed in his accomplishment of operating his business with the least amount of friction he is operating efficiently. The principles which are now recognized as those which conduce to efficiency are those which take advantage of innate human tendencies. The manager lays out his organization in departments so as to develop a team where each individual is so harnessed as to pull his part of the administrative mechanism in parallel with that of his fellow in the next department, and the harness must be so adjusted to all of the participants in the service that the latter do not overlap each other's traces and so interfere with each other's movements.

In our industrial field we must endeavor to search for the principles of efficient organization and management, for manage-

ment means simply the operation of the organization when properly developed.

When we have a grouping of employer and employe in any industrial enterprise so as to permit the operation of efficient organization and management, we have an approach to democracy in industry, and the nearer we can approach to the principles which we have found to be successful in political democracy the less the friction will be and the higher the efficiency.

In order that the manager may obtain the best results along modern lines of efficient operation, he should get the most advanced members of his group to co-operate with him in organized team work, each specialist taking charge of his own department and studying its features so as to secure the highest refinement in the direction of the special business. Too often do personal animosities and selfish business interests interfere in this efficient development, but the principles of efficiency are becoming more and more generally applied, and when they become thoroughly established we shall obtain a better relationship between the members of the groups and a better condition of affairs in industry and business.

At the conclusion of the speaking, one of the members arose and proposed a vote of thanks to the president and to the members of the Dinner Committee for the unqualified success of the dinner and the great pleasure that had been afforded the members and their guests. Vice-President, George B. Hodgman put the vote, which was carried unanimously.

A new feature was then introduced, namely, a rubber moving picture show, in two parts. The first part showed the growing of rubber in the Middle East plantations, depicting the whole process from the clearing of the jungle to the placing of the cases of rubber on the ocean liners bound for European ports; while the second part of the show covered the gathering, preparation and shipping of wild rubber in the Amazon Basin. The pictures descriptive of the Eastern Plantations were secured especially for this entertainment through the courtesy of Mr. A. Staines Manders, of London, the manager of the Rubber Exposition, recently held in New York.

When, at the highly conservative hour of 11:30 all the diners arose and sang "America" as the concluding chapter of the evening, and then made their way toward the coat room—guarded by the usual number of young but remorseless financiers—it was universally agreed that in no one's experience had any evening been spent more pleasurably or to better profit.

THE MEMBERS AND GUESTS PRESENT.

At the Speaker's Table.

Sawyer, Homer E.
Williams, E. S.
Porter, H. F. J.
Hodgman, George B.
Pratt, Sereno S.
Hood, Frederic C.
Hooper, Prof. Franklin W.
Bourn, Hon. Augustus O.
Apsley, Hon. L. D.
Appleton, Col. Francis H.
Sharkey, Lawrence.

Alphabetical List of Those Present.

A

Apsley, L. D.
Arnold, Chas. H.
Archer, Calvert B.
Alden, G. Edwin.
Arnold, W. H.
Appleton, Francis H.
Alden, John Victor.
Appleton, L. E.
Anderson, J. D.
Archer, A. W., Jr.

B

Barker, Wm. E.
Barnard, Orin A.
Bass, William F.
Baird, Robert B.
Bourn, Augustus O.
Brunn, A. W.
Badenhop, Robert.
Byles, W. E.
Brown, A. H.
Baird, William T.
Baird, Collier W.
Bushnell, F. O.
Bates, Edgar A.
Blackwell, Wilson H.
Barnes, Charles W.
Bryant, George G.
Boyd, James.

C

Conlin, Andrew I.
Carberry, John D.
Caldwell, R. J.
Chandler, George D.
Courtenay, J. H.
Clark, John H.
Chipman, R. L.
Coe, Chas. A.
Cutler, D. A.
Chandler, J. J.
Conlin, D.
Cottle, G. T.
Cornell, A. Boyd.
Callaway, Fuller E.
Cavanaugh, Mr.
Chichester, I. K.
Cranor, D. F.

D

Dunbar, J. Frank.
Dunbar, Frederick W.
Devine, Joseph P.
Dunn, H. T.
Dannerth, Frederic.
Dorr, Roy L.

E

Eckhardt, P. O.

F

Fuller, Harold P.
Feinburg, D.
Faber, Eberhard.
Faber, Lothar W.
Firestone, H. S.
Feltes, N. R.
Fox, Frank F.
Frissell, F. H.

G

Glidden, A. A.
Gough, Wallace L.
Gardner, Geo. A.
Garretson, C. D.
Gordy, J. A.
Goldman, Herman.
Greutert, Henry.
Gove, Fred G.

H

Hall, Geo. E.
Hicks, Ellsworth H.
Hodgman, Geo. B.
Hodgman, S. T.
Hood, Frederic C.
Hawkins, J. J.
Hopkins, M. G.
Huber, Edward E.
Hubbard, H. B.
Hering, Henry F.
Hooper, Prof. Franklin W.
Hawkins, D. A.
Hichborn, George F.
Hillman, William.
Henderson, Frank.
Henderson, Bancroft.
Howard, William H.

I

Inwood, W. A.

J

Jacoby, Ernest.
Johnstone, James T.
Jewett, F. J.

K

Kelly, Wm. J.
Kelley, Edward B.
Kenyon, George.
Kent, William J.
Kush, Gustave.
Kubie, Samuel.
King, B. S.
Kaufmann, C. B.
Korn, Ernst.
Kinkel, J. S.

L

Lewis, Tracy S.
Lyons, John P.
Lowman, J. S.
Lahey, Frank T.
Luddington, G. A.

M

Maurer, Ed.
Mayo, Wm. H.
Meyer, Otto.
Muehlstein, J.
Muehlstein, Herman.
MacMichael, L. P.
Montgomery, Henry.
Mayo, Geo. H.
Meacham, John J.
Manchester, A. A., Jr.
Moon, Daniel.
Moon, A. E.
Mendel, W. H.

N

Neale, E. L.

O

Odell, Jas. E.
Oakley, C. H.
Owens, R. J.

P

Palmer, Wm. H.
Pfaff, Edward F.
Procter, Wm. L.
Poole, Wm.
Perlish, Henry.
Peaty, F. H.
Porter, H. F. J.
Pratt, Sereno S.
Pell, George E.
Panke, Ferd. Christian.
Polack, H. W.
Parsons, W. G.
Price, P. B.
Parker, J. R.

R

Reeve, Arthur.
Rice, Robert L.
Rodenbach, Wm. T.
Ryckman, W. G.
Robinson, George B.
Robinson, H. E.

S

Schaffer, F. F.
Schlosser, George.
Scott, Hugh D.
Stone, J. Everett.
Stowe, Griswold.
Swasey, Walter I.
Sachs, Robert Paul.
Schwab, F. M.
Schwab, Otto J.
Stearns, E. Ward.
Spadone, Henry.
Sharkey, Lawrence.
Sweet, W. A.
Saterlee, R. S.
Stedman, H. B.
Smith, George E.
Sachs, Adolph R.
Stokes, R. T.
Schweinert, M. C.
Stokes, M. C.
Stimpson, Harold.
Stiles, W. H.
Sawyer, Homer E.
Sheldon, J. H.

T

Thomas, Lewin H.
Tweedy, O. S.
Thornton, A. D.
Thompson, Kennedy M.
Thom, W. W.
Tallman, A. V. W.

V

Van der Linde, H. T. G.
Van Etten, John de C.
Vanalst, Mr.
Van Cleaf, John C.
Vanderbilt, George E.

W

Wadbrook, Elston E.
Wilson, Charles T.
Warren, A. W.
Watson, Byron S.
Weber, Hermann.
Weston, John D.
Williams, Warren.
Weiss, George.
Wood, Charles.
Weber, Edward.
Weiss, A. S.
Wildman, B. J.
Williams, E. S.
Wuchter, W. W.

Z

Zeiss, Albert.

Dr. Jacques Huber's Visit to the East.

CLOSELY following his able paper read at the late Rubber Conference, there has appeared an interesting report by Dr. Jacques Huber, the well-known Pará authority, dealing with his visit early last year to the Middle East. In his journey of investigation he was accompanied by Messrs. H. Akers, Alfredo Ufenasi, and Franciso Lugones, the last-named gentlemen representing various Pará shipping interests.

Sailing from Marseilles on December 13, 1911, they reached Colombo on December 31. Their first visits in Ceylon were to the Botanic Gardens of Heneratgoda and Peradeniya, where they saw the parent rubber trees from the *Hevea* seeds introduced in 1876. Dr. Huber acknowledges the courtesies received from various officials, including Messrs. Lock, Kelway-Bamber, and Petch, at Peradeniya, as well as Mr. Alexander Wardrop (since deceased), secretary of the Ceylon Planters' Association.

In the course of his investigation, he then visited the plantations of North Matale, Tapton Wood, New Peradeniya, and Pallekally. Returning to Colombo, he and his colleagues spent a day at the Culloden estate; subsequently visiting, amongst others, those of Deviturai and Gikayanakanda.

After spending nearly three weeks in the Island of Ceylon, which constituted the first stage of their journey, the party embarked on January 19 for Singapore, which became their center of action on the Malay Peninsula, where they passed five weeks. On arriving at Singapore, Dr. Huber's first step was to try to get into communication with Mr. H. M. Ridley, Director of the Botanic Gardens of that city, whom he qualifies as the man to whom, above all, the Malayan planting industry owes its development and prosperity. Mr. Ridley having retired into private life, some days before Dr. Huber's arrival, he was courteously received by Mr. Derry, one of the veteran promoters of the cultivation of *Hevea* in the East, under whose guidance he visited the Gardens.

Having decided to visit, in the first place, the plantations of the Federated Malay States, where rubber cultivation is the most highly developed, the party embarked on January 27 for Port Swettenham, on their way to Kuala Lumpur, the capital of the Federated States. In the course of the short railway journey from the port referred to they had an opportunity of seeing the noted Klang district, which has been transformed into a vast forest of rubber trees. The following days were devoted to automobile excursions, in the vicinity of the capital and in the district of Klang. Among the estates visited were: Batu Caves, Kent, Wardieburn, Damansara, Bukit Rajah, Vallambrosa, and West Country.

The Malacca Territory occupied their attention from February 3 to 6; during which time they visited the Cumendore plantations, belonging to the Malacca Rubber Plantations, Limited, as well as Ayer Panas, Pegoh Estate, Linggi Plantations, Marjorie, Linsum and Labu Estates. On their return to Kuala Lumpur they paid a visit to the Kuala Lumpur Experimental Station, headquarters of Mr. Lewton-Brain, Director of Agriculture of the Federated Malay States. Dr. Huber refers with appreciation to his cordial reception by Mr. Brain and his scientific staff.

On February 10 they left Kuala Lumpur for Teluk Anson, in the State of Perak, from which point they visited the Cicely Estate, as well as the Nova Scotia, Rubana and Bernam Perak Plantations. On subsequent days the party visited the Kamuning, Changkat Salat and Lauerdale Estates; finally inspecting the Museum of Taiping, capital of the State of Perak. From the last-named point they took the train, on February 15, for Penang, which became their headquarters for the balance of the month. The chief points visited were the Malakoff and Sempuh Estates, where valuable information was gathered as to the cultivation of rubber, mandioca and cocoanuts. Owing to the Chinese New Year's, business was more or less generally suspended during the latter part of February.

On March 1 they embarked for Sumatra, where they spent almost three weeks at the capital, Medan, making excursions in various directions, and visiting, among others, the plantations of Bangoen Poerba, Gallia, Bandar Maria and Cilinda. On succeeding days they took in other plantations, including that of Dolok Baros, situated about 3,000 feet above the level of the sea, being thus the highest point at which *Hevea* grows in the Island of Sumatra. Among other plantations visited were the Dolok Estates, Sunger Mangkei, Batoe Rata and Simahé.

Returning for a few days to Singapore, Dr. Huber and his colleagues took steamer from there to Batavia, Java, where they arrived on March 26, visiting on the following day the Botanical Garden of Buitenzorg, where they received much valuable information from Dr. Tromp de Haas and other scientists of that institution.

Among the Java plantations visited were the Dramaga, Tjukados, Pasir Oetjing and Sengon Estates. The testing station at Malang and the Garden of Acclimatization at Vonger contributed valuable information. The party returned from Batavia to Singapore on April 18.

Before returning from Singapore to Europe, they inspected the plantations on that island belonging to the Hollandsch Americansche Plantage Maatschappij (Holland American Plantation Co.).

GENERAL CONDITIONS OF COUNTRIES OF RUBBER PRODUCTION.

This itinerary is followed by a discussion of the general conditions affecting the subject. Dr. Huber expresses the opinion, that while rubber cultivation has been developed in the Malayan Peninsula, as well as in Ceylon, Sumatra, Java and Borneo, the other Eastern countries in which it has been introduced, such as Southern India, Burma, Cochin-China, the Philippines, New Guinea and Samoa, will probably never exercise a preponderating influence upon the world's rubber production.

As to climate, it is added that the above countries are relatively uniform in temperature, while the amount of rainfall varies considerably, according to the districts. Regarding topography, the Eastern rubber producing countries are distinguished by their character being more varied than that of the Amazon region. Ceylon is relatively mountainous in the center and southern half of the island, culminating in Adam's Peak, 7,379 feet in height. The cultivation of *Hevea* extends to a portion of the mountainous region, in some cases attaining a height approaching 3,000 feet above sea level. In the Malayan Peninsula a mountain chain extends from northwest to southeast, with an undulating plain extending along the west coast. In Sumatra there is likewise a mountain chain from northwest to southeast; while in Java plains alternate with mountains of a massive character, some of which are volcanic, with rich soil, and others of tertiary calcareous formation, poorer in quality. Borneo is also to a great extent mountainous, with large rivers, the alluvial plains of which are covered with virgin forests, partly marshy in character, thus more or less resembling Amazonian conditions. Burma, Siam and Cochin China are marked by extensive plains, varied by low hills.

With respect to population, Dr. Huber is of opinion that the Eastern rubber producing countries are in a favored situation as compared with Amazonia. The former countries have a relatively large native population, essentially agricultural in its

character, which has served to carry out European enterprise. The Singhalese of Ceylon, the Malays of the Peninsula and the Sunda Islands, as well as the Javanese, are easily accessible to European civilization.

The population of the five principal Eastern rubber producing countries is estimated as follows: Ceylon, 4,000,000; Java, 30,000,000; Federated Malay States, 1,000,000; Sumatra, 3,200,000; Borneo, 1,700,000. Of the four million population of Ceylon, about two-thirds belong to the Singhalese race, while the coolies on the plantations are almost all Tamils from Southern India. On the Malayan Peninsula the number of coolies employed in 1910 was 179,030, composed of: Tamils, 98,988; Chinese, 45,663; Javanese, 17,760; Malayans, 14,258; others, 2,361. In Malaya the Tamil coolies are generally found on the older estates, having a prejudice against new estates. Tamil coolies, in addition to being cheaper, are more obedient than Chinese and Javanese coolies.

Regarding hygienic conditions, they are in general satisfactory in Ceylon, except in times of epidemic, while in Malaya and Sumatra they leave a good deal to be desired, particularly in new plantations.

HISTORY OF HEVEA CULTIVATION IN THE EAST.

In a section devoted to the above branch of the subject Dr. Huber recalls the well-known facts which have led to the present development. The total area planted in the Middle East is estimated at 1,125,000 acres in 1911, divided as follows:

	Acres.
Malayan Peninsula	550,000
Ceylon	215,000
Sumatra	150,000
Java	125,000
Other Sunda islands	40,000
Southern India and Burma	30,000
Cochin China	15,000
Total	1,125,000

PRODUCTION OF EASTERN PLANTATIONS.

The figures of 1911 exports from the two principal sources in the Middle East are quoted as: Ceylon, 3,194 tons; Malaya, 10,700 tons; total, 13,894 tons. With respect to Malayan production for the five years 1912 to 1916, Dr. Huber makes the following estimate: 1912, 20,000 tons; 1913, 32,000 tons; 1914, 45,000 tons; 1915, 60,000 tons; 1916, 70,000 tons. That these figures are not exaggerated is confirmed by the independent estimate for 1916, of 65,000 tons from 360,000 acres, by the Director of Agriculture of the Federated Malay States.

PLANTATION ORGANIZATION.

This subject is comprehensively dealt with, from the acquisition of the ground to the packing of the rubber for shipment. The question of the cost of production is then taken up and finally the cost of establishing a *Hevea* plantation.

FUTURE OF ASIATIC PLANTATIONS.

The portions of Dr. Huber's report referred to, chiefly deal with the past and the present of Eastern rubber cultivation. In the last two sections he discusses the future of Asiatic and Amazonian plantations. He remarks as to the former, that an industry so highly developed and so richly capitalized will not allow itself to be easily overcome by unfavorable circumstances, and to a certain extent guarantees its own success. At the present price of rubber, a well-managed plantation in full bearing is, he remarks, in a position to yield fabulous profits, if the capitalization is not too high. He asks whether these conditions may not be altered by external or internal causes, the former including the question of labor and its price.

The chief danger confronting the Asiatic plantation industry, however, arises from its organization, and depends upon financial considerations. The careful observer will remark in this rapid evolution, symptoms of precipitation and errors inherent to an industry still at an early stage.

After discussing the cultivation of *Hevea* in comparison with that of cereals, tobacco and cotton, Dr. Huber adds, that in accordance with the nature of the plant, its cultivation should be slow but steady, while under the exacting requirements of capital, it has to give a maximum yield. Probably the time will come when planters will recognize the necessity of letting the trees rest at regular intervals.

Dealing with the question of the number of large trees to an acre, he refers to the opinions expressed in favor of planting 50 or 40, giving his own view that under the most favorable circumstances not more than 20 should be allowed. For 400 pounds to the acre each tree would then have to give 20 pounds.

As to the general question, Dr. Huber remarks that there is no longer any doubt of the acclimatization of *Hevea* in the East, public opinion in Amazonia having, moreover, begun to be enlightened on that point.

EASTERN AND AMAZONIAN PLANTATIONS.

In the final passages of his report, Dr. Huber remarks that one of the principal factors in the rapid development of Asiatic plantations has been the abundance and cheapness of labor in contrast with its high cost in Amazonia. "But," he adds, "we are in need above all of a *directing staff* of skilled agriculturists, with sufficient experience to organize an important agricultural enterprise with satisfactory results. In the East such men are never lacking, particularly those trained in Ceylon and Java as administrators of plantations."

The opinion is expressed that the complete abolition of duty on plantation rubber exported (even for a certain number of years) would be the most efficacious means of stimulating Brazilian plantations, especially those heavily capitalized.

As has been already pointed out. The cost of establishing in Brazil a plantation upon the Eastern model would be higher, on account of the dearer labor, which costs in Amazonia, it is estimated, ten times what it does in the East. But, apart from the question of establishment, is that of operation, in which Dr. Huber sees no chance of competing with Asiatic plantations, at least during the earlier years of existence, when the yield of latex is small. The whole problem depends on the yield obtained by the individual laborer. If he is paid ten times as much as in the East but gathers ten times as much rubber, he can compete.

In conclusion Dr. Huber thus sums up the case of the East vs. Amazonia: "In the East, where labor is relatively cheap, and where a tax is paid on the land, the return for a given area is of great importance. On the other hand, here (in Amazonia) where land is relatively abundant and cheap, but labor very dear, this factor is of subordinate importance to the yield per laborer. Consequently we ought to strive in our plantations to prevent the trees planted from being exhausted before their time, by premature and unprofitable tapping, so that at least a good part of them may attain large dimensions; this being the only means of insuring profitable working, notwithstanding the high cost of labor."

Such are a few of the most salient points in Dr. Huber's valuable and interesting report (in Portuguese), which in pamphlet form occupies 116 pages. While principally intended for the Brazilian planter, it contains much matter of general value to the industry. Told in Dr. Huber's lucid and comprehensive style, the story of his Eastern journey is a distinct acquisition to rubber literature.

M. J. Kabayashi has been appointed editor-in-chief of the Japanese rubber paper, "The Gomu Shimpo Sha," published at Tokyo, Japan.

MR. H. A. WICKHAM AND ONE OF HIS TREES.

PROBABLY everybody in the rubber industry is more or less familiar with the story of Mr. H. A. Wickham and the cargo of *Hevea* seeds which he gathered along the Amazon in 1876 and carried to Kew Gardens in London. Charles Goodyear

MR. WICKHAM AND ONE OF HIS ORIGINAL SEEDLINGS.

may properly be called the father of the rubber industry, but Mr. Wickham is certainly the father of the rubber plantations. It was 50 years ago—when he was a considerably younger man than he is at present—when he first conceived the idea of planting *Hevea* trees on soil under English control. He was exploring the Amazon Basin, not particularly well known in those days, when he saw the great forests of *Hevea* trees, and it occurred to him that these trees could be made to grow under the very similar conditions that obtained in India.

He went back to England and tried to interest his friends, but they thought his scheme much too visionary. However, finally he interested the India office and returned to the Amazon in

1875 with a commission to get the seeds in any way he could. It was not so difficult to get the seeds—but it was extremely difficult to get them out of the country, as obviously the Brazilian authorities would not view with composure this attempt to rob them of their monopoly. But by great good luck in the following year he was able to charter an English steamer that appeared on the Amazon, and by the assistance of a small army of natives he soon collected over 70,000 seeds, and was off down the Amazon and out on the ocean headed for England. The seeds were planted immediately on his arrival, and two weeks later thousands of little rubber plants were to be seen in Kew Gardens. These were later sent to Ceylon, and there started the great plantation industry. The above picture shows Mr. Wickham (who is still hale and hearty and interested in rubber growing) leaning against one of his seedlings sent out to Ceylon thirty-seven years ago. This tree produced 240 pounds of dry rubber in the two years 1909 to 1911.

CEYLON HARD FINE PARA.

According to latest advices, Mr. H. A. Wickham, the father of the Eastern plantation industry, expects to remain until July next in Ceylon, where he has been more than six months developing his process for producing plantation rubber on the lines of Hard Cure Pará. His previous work on these lines was referred to in THE INDIA RUBBER WORLD of November, 1912, on page 112.

From reports quoted in the local Ceylon press, it would seem that the samples of rubber treated by Mr. Wickham's process have been pronounced in New York and London to be the nearest approach to Fine Hard Brazilian Pará as yet sent from Eastern plantations.

In order still further to test the matter, it is proposed to ship half a ton of this smoke-cured rubber at an early date. Manufacturers are prepared, it is said, to pay a premium of 4*d.* per pound for this rubber treated by Mr. Wickham's process.

A FRENCH VIEW OF AMAZONIAN ECONOMIC DEVELOPMENT.

IN an interesting article in the "Bulletin of the French Society of Commercial Geography" M. V. Cayla (Agricultural Engineer) deals with the general question of the economical development of the Amazon territory. While much of the matter contained in the article is already familiar to our readers, it seems well worth while to review it briefly, in order to show the conclusions reached by a trained European observer, who has carried on his investigations in that territory in a thorough and painstaking manner.

He recalls the fact that the Amazon, while doubling its production of rubber within 20 years, now only furnishes about 49 per cent. of the world's supply, instead of 61 per cent. a score of years ago. The increased Malayan production will doubtless, it is added, lead to a continuance of the present comparatively low prices of rubber. These conditions are only to be met by a reduced cost of Brazilian production, to which end the recent Federal legislative measures have been directed.

The problem of Brazilian rubber includes two varieties, *Hevea* and *Castilloa* (caucho), the former being of chief interest. It is obtained by the Brazilian method, which under present conditions is preferable to that used on the plantations of the Middle East. The Amazonian production has, in fact, marked advantages over the Malayan plantations. Virgin forests, rich in rubber trees, cover extensive surfaces along the Amazon and its affluents. *Heveas* are there found in the condition best adapted to their development. By the fact that the *seringueiro*, when making up his "estrada," only takes in sufficiently mature trees, in itself constitutes a selection. These undoubted advantages, which have rendered Amazonian rubber the standard of the market, are outweighed by the high prices of labor and provisions; particularly in the districts furthest from the seacoast. On the Rio Xingu, moreover, the situation is complicated by the irregularities of the bed of the river, which impede navigation. As a result of this situation, the cost of rubber transport from Iriri to the port of Pará represents about 22½ cents per pound.

Among the causes of dear labor is the insalubrity of the climate, which prevents the workers, almost all from the State of Ceara, from bringing their families to Amazonas.

The export and other duties imposed by the States of Amazonas and Pará reach a total of 25.93 per cent. on the value. In addition there is a municipal tax levied on rubber at the point of production, so that it is estimated that including the various duties and freight, the cost of bringing rubber to Pará represents about 53 per cent. of the selling price at that point. It is added that the freight from Pará to Europe and to the United States is too high and might be materially reduced.

In view of the inexhaustible wealth of the Amazon basin in rubber and other products, the improvement of the methods for developing Brazilian industry acquires preponderating importance. Reference is specially made to cacao, rice and tobacco as of possible interest in this connection.

In addition to facilitating the wild rubber industry, the importance is urged of developing the planting of *Hevea* in Brazil, its natural home; following out the successes which have marked its introduction from Brazilian seed in the Middle East. This principle has been understood by the Federal Government; the legislative measures adopted, while favoring the wild rubber extraction by reductions in export duties, affording much greater advantages to the plantation industry, ranging from premiums for planters, to total exemption from export duty, and from duty on the necessary working installation. Owing to the legislation only dating from January, 1912, plantations are as yet few in number, being principally situated along the lower Amazon and in the large island of Marajó.

Nor is the economic development of the Amazon in danger from difficulty in the shipment of its products. The important port of Pará has recently completed improvements which will permit of its accommodating at its quays steamers of 7,000 tons.

These facts are brought out by M. Cayla in the paper he has prepared in anticipation of his proposed visit to the Brazilian *Hevea* plantations. In his concluding words he thus expresses the French view of the situation:

"The production of the Amazon is therefore not in the desperate situation which might be inferred from certain pessimist opinions. Doubtless, it finds conditions not so easy as formerly, competition having intervened for its chief product—rubber.

"It becomes necessary to modify the processes used, . . . and to turn from the period of exploitation to that of colonization. This is the program which Brazil has traced for her Northern states, for which competition is the best stimulant."

THE BYRNE SMOKING MACHINE.

The "Times of Ceylon" quotes a cable report from London to the effect that the Byrne smoking machine has been thoroughly tested, with the result that the curing produces a distinct improvement in the quality of the rubber. Figures obtained are said to show that the resiliency is better than that of Bukit Lintang crepe, while the resistance and recovery are higher.

RUBBER SHIPMENTS TO THE UNITED STATES FROM SOUTHAMPTON.

An official report from Consul Albert W. Swain shows that the shipments of crude rubber from Southampton to the United States represented in 1910, $8,230,125, and in 1911, $7,436,690. In contrast with these large exports of crude rubber are the relatively small amounts of $60,040 and $60,200 for manufactured rubber goods shipped from that port to this country.

SPECIFICATIONS THAT HINDER PROGRESS.

EDITOR OF THE INDIA RUBBER WORLD—SIR: Fire departments of this great and wealthy country must necessarily continue to be equipped, as they now are, with the best products of the American factories; with particular reference to hose it is the earnest desire of the manufacturers to obtain recognition for their best output. They are, however, practically unanimous in the belief that this opportunity cannot be offered through the medium of specifications. This is due to the fact that specifications covering any product of which rubber is a constituent part, cannot be drawn in detail so as to assure obtaining the best quality. Manufacturers of hose having a varying experience of from ten to fifty years have acquired a knowledge of compounding rubber, warranting their belief that by their particular process they have obtained the best present compound of rubber for a fire hose tube. This is not necessarily of delicate refined texture, but must possess strength, resiliency and durability.

Each manufacturer thinks that after experimenting practically all his life, he is making a rubber tube a little better than the others, and each is striving to place in the fire departments the very best result of his experience and factory facilities. As these processes vary it is not natural to expect any established manufacturer to divulge the ingredients of his rubber compound. In fact in most cases it would be impossible to formulate specifications providing for a chemical test that will be in even a moderate degree accurate in showing the value of the tube. The ability of the chemist to determine by his art the rubber component part of a vulcanized compound is not a lost art, but one which has never yet been discovered. Hence the inconsistencies in all specifications.

It is a mistaken policy for any city to adopt or dictate theoretical specifications to which no manufacturer of experience and integrity of purpose can commit himself. It is perhaps, hardly within the province of propriety for the seller to attempt to dictate to the buyer, but the manufacturers may venture to offer the suggestion that if fire engineers and municipal officials continue to make conclusions based upon experience they will make no mistakes.

We say again, the best rubber products today are not susceptible of accurate chemical analysis. A tube made up of a certain percentage of pure new rubber, mixed with brains and experience, will be much more durable than a specification tube composed of laboratory theory and inexperience. To obtain the best hose put the manufacturers on their mettle, and create among them the spirit of competition in quality, not competition in price alone.

If the combination of insurance interests wishes fire departments to buy apparatus and hose of its own makes, why does it not maintain fire departments from its own profits. The large revenue even at present rates of insurance would warrant this and leave ample funds for fat dividends.

What is the actual cost of fire insurance, as compared with the insurance trust charges?

The average cost per annum for real actual fire insurance as shown by six years' results in the mutual or co-operative companies, doing business where they are not restrained, was just eight and six-tenths cents per annum on each one hundred dollars. If the so-called straight line companies succeed in obtaining control over the tax-payers' fire department property, will the reduced rate be anything like eight and six-tenths cents per one hundred dollars? If not, why not?

Large fires and the consequent large losses are seldom the results of imperfect hose and apparatus, or inefficient fire department service, but are most frequently due to causes beyond the control of human or mechanical effort, or within the scope or ordinary fire department organizations to meet; and labels on hose or apparatus attesting its popularity with the Underwriters Laboratories would not save the property.

A large fire in any community is seized upon by the insurance interests and used as a club to pound the fire department. As for instance in the case of the City of New York, having the best equipment obtainable and the best organized fire department in the world. Is it supposable that a school of theorists should be competent to reform that great modern fire department? It is said that large fires periodically are productive of great profit to the insurance companies, as they furnish the means of throwing a scare into the people for another juggle with rates—to send them up or keep them where they are, when they dare not put them higher.

The best method of selecting hose for fire department purposes is to allow the manufacturers to offer prices and samples of their very best products, the departments to reserve the right to reject any or all bids, and the samples thus submitted under the supervision of the chief executives of the fire department, would show to the people of the cities that their fire department is self-contained, and well able to select the best tools for protecting property. A city should rely upon the records of its own fire department for the quality of brands of fire hose it has used in the past. It should also try new brands of the very best quality in material and manufacture that may be offered. This course will create a rivalry among the manufacturers on the test of quality alone. Furthermore, it should hold the manufacturer responsible for any defects in material or manufacture that may develop in three years.

By distributing their business, buying only the best, the fire departments will soon obtain the absolute confidence of the public, and prove that there can be no better criterion to go by than the judgment and experience of the trusted officials of the fire department and their record of past performances.

The insurance interests claim that they wish to elevate the efficiency of fire departments. Whence comes their knowledge of fire fighting ability, and standards of quality justifying their sweeping condemnation of methods now in vogue? Theory and practice have always been at variance. The insurance laboratory has the theory. Our fire departments have the experience. Which should command the greater respect?

Municipalities should, and will, protest against the arbitrary inspection and dictation of self-appointed and self-interested censors. City government under our American system is not a failure, and men selected to serve on its boards as fire commissioners or chief engineers, are capable of making their own judgment, and of following legitimate business methods.

MANUFACTURER.

EDITOR OF THE INDIA RUBBER WORLD, SIR.—Coaltar Pitch has recently been offered to us as a compounding ingredient to be used in place of the expensive Earth Pitches. Now the price is very attractive at twenty dollars per ton. What I would like to know is this: Have any of your readers any experience with this material in the mixing of compounds for mechanical rubber goods? Do these compounds "bloom" or "dry out"? Thanking you for any information which you can give me, I am.—WALTER FERGUSON.

The English Society of Dyers and Colorists are offering a prize equal to $100 for an investigation of the maximum amount of copper in dyed cloths for rubber proofing. Papers have to be sent in before June 30, 1913. Another prize of same amount is being offered for a printing machine cylinder obviating the necessity of using blankets or lapping. The use of rubber-covered rollers has been suggested and tried, but results have not been decisive.

The Thirteenth Annual Automobile Show.

THE Thirteenth Annual Automobile Show, held in New York from January 11 to 25, might with great propriety be called a multitudinous success, for it was crowded beyond precedent. This Show has outgrown any one building in New York, and consequently this year it was held in the two largest show buildings in the city—the venerable and capacious Madison Square Garden and the spacious new Grand Central Palace. It not only was held in two buildings, but was divided into two parts; part one consisting of pleasure vehicles and occupying the first of the two weeks of the Show—from January 11 to 18—and part two being devoted to commercial vehicles and covering the second week—from January 20 to 25. The management had hoped for an attendance of 300,000 during the first week and 100,000 during the second week. Both of these hopes were more than realized, and probably half a million people attended during the two weeks.

About 500 exhibitors took part during the two weeks and 1,000 distinct exhibits were shown—the value of which has been estimated at close to $6,000,000. This is certainly a wonderful growth from the little initial show of 13 years ago, when there were practically only 20 exhibits, and when such visitors as attended were prompted rather by curiosity as to what these "buzz wagons" might be, than by a lively sense of personal interest—which was the actuating motive that took most of the several hundred thousand visitors to the recent exhibition.

Too much praise cannot be given to the scenic experts who prepared the Garden and the Palace for the 1913 exposition. In the Garden the roof of the edifice—not in itself a very sightly spectacle—had been covered by thousands of yards of sky-blue draperies dotted with thousands (to be more exact something over 7,000) electric bulbs, which, flashing out of the dull background, gave a wonderfully fine starry effect. In addition to all this individual illumination there were three large crystal chandeliers hung in a line through the center of the big building, around which there was an oval of twenty smaller crystal lights, the whole giving a particularly brilliant effect. The rest of the Garden was decorated in white and green, while the names of the exhibitors—all in a uniform character of display—appeared in red or white. Everything was done to make the general appearance harmonious and to eliminate any suggestion of incongruity.

The Palace naturally lent itself to fine decorative effects, and here the scheme of ornamentation ran to mural paintings and trellises covered with running roses.

The tire exhibitors, of whom there were 40, had their display at both places, on the upper floors. In the Garden they occupied a very considerable part of the first and second galleries, while in the Palace they had much of the space on the third floor. Practically all the leading manufacturers were represented, and represented very adequately, occupying generous space, in which, avoiding all appearance of crowding, they showed only their leading lines. One feature that could not help impressing any visitor was the liberal volume of literature provided by the tire makers for the general education of the public. For instance, the B. F. Goodrich Co., on a stand at the front of its exhibit had twenty different booklets, pamphlets and folders, varying in size and volume of contents, but all attractive in appearance, and some of them obviously representing considerable expense. The Diamond Co., the United States Tire Co., the Firestone Co., and the rest were not far behind. Anyone who made a judicious collection of this literature—free to all—and took it home and digested it carefully and intelligently, ought to know more about the tire industry than has ever yet gone into any encyclopedia.

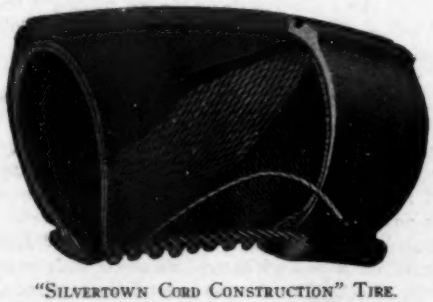
There were not many absolutely new tire offerings exhibited at the show; and logically one could hardly expect that there would be, as the tire industry has long since reached a conservative basis where distinct innovations are not to be expected in rapid succession.

One tire was shown, however, that is new to this country—

MAIN FLOOR AT MADISON SQUARE GARDEN.

although it has been familiar to the Englishman for several seasons—the tire made by the Silvertown Cord Construction. The Diamond Rubber Co. rented a spacious corner just across the avenue from the Garden, at the corner of Twenty-seventh street, and there, where its operation could be commanded through two large windows from the sidewalk, a machine was in motion constructing this "Silvertown Cord" tire. There was always a crowd of spectators on the walk and another crowd of spectators inside watching this machine at its evolutions. Briefly the tire is made as follows: An inner lining of rubber is laid over a wooden form; the form is then placed in the machine. A long arm seizes an endless cord (flat, about ⅛ inch wide, made of many strands of the best cotton and impregnated with rubber) and swings it over the tire form, when two steel hands clutch the cord, bringing it in a double loop down diagonally over the form, fastening each loop to a steel peg on the inner side of the form and releasing it just as two sets of steel fingers reach around the cord and press it tightly into place. In watching this operation one is lost in admiration at the ingenuity of this machine; it is uncanny in its intelligence. As one observer said: "It can do everything but talk." As the long arm swings back to get another double fold of cord, the form moves slightly forward, and is ready for the next double loop.

MAIN FLOOR AT GRAND CENTRAL PALACE.



"SILVERTOWN CORD CONSTRUCTION" TIRE.

After the form has completed a revolution, and the rubber lining been entirely covered with the cord, another thickness of rubber is put over it and the process repeated—except that the cord now runs diagonally the other way. When this layer is completed the tire is ready for its tread. These tires are extremely resilient, rebounding several times when dropped on the floor, and will stand ten times the air pressure to which a tire is normally subjected. They cost a little more than tires constructed of layers of fabric, but are said to give a materially longer service.

Here is a somewhat detailed description of the exhibits made by the tire manufacturers. Some of these exhibits were new; some were shown a year ago; but all are interesting as showing the trend of tire development in this country.

The Fisk Rubber Co., of Chicopee Falls, Mass., had on exhibition a line of heavy-car type tires, including a clincher "Q-D," Fisk-Dunlop and bolted-on types, the Fisk Removable-Rim and Pure Pará inner tubes. The Fisk "Town-car Tread Tire" is the latest production. The knobs on this tire are in addition to the regular thickness and are arranged in three rows running around the tire, the largest row of studs being in the centre. This shoe also has a ring on either side to take care of the slipping in turning sharp corners.

The Ajax-Grieb Rubber Co. showed both their smooth tread and their anti-skid, which consists of cross-cuts in the rubber, and is noted for its thick treads and great road-gripping power.

The Pennsylvania Rubber Co., originators of the "Vacuum-Cup" tread, had a line of their new oil-proof tires, which they claim are not injured by oily roads.

The New Jersey Car Spring & Rubber Co. tires are made by the one-cure wrapped tread process. The "Clingtite" tread is a depression instead of a projection construction. The depressions are cup-shaped with protruding centres at the middle of the tread, while at the sides they are semi-circular. The cups with raised bottoms are designed to form a vacuum as the rubber is pressed against the road-bed, and the claim is that, as the pressure is released; the convex bottom automatically breaks the vacuum.

The Thermoid Rubber Co. showed a full line of brake lining, bumpers and hose, red inner tubes bearing the trade name "Merit." Their "Thermoid *de Luxe*" tire is the company's leader. They also manufacture the "Nassau" tire.

The Miller Rubber Co. has developed a new tread. It consists of angle-shaped depressions arranged in two rows, one on each side of the centre of the tread. They are manufactured by the one-cure wrapped tread process.

The United States Tire Co. showed the "G. & J.," Morgan & Wright, Continental, and Hartford tires. The tread with two chains running around the tire was on the stand, and the "Nobby" tread was seen on an extra large tire designed for truck use—38 x 8—easily the largest tire there. This company also showed a new red inner tube.

The Republic Rubber Co. makes the "Staggard Tread," which has a series of finger-like projections running around the tire. There are six rows of these so set that the space between two of these come opposite centres of the adjoining row.

The Empire Rubber & Tire Co. showed a new line of red tires in smooth and non-skid treads. They claim that this wears better and heats less than grey tires.

The Diamond Rubber Co. exhibited the "Squee-Gee" tread as their safety; and the "Diamond Silvertown Cord" tires, the making of which is described in the first part of this article. The "Squee-Gee" tread consists of a series of five finger-like projections joined together through their centers by a strip of rubber running across the tread. This design repeats itself around the tire. These tires are made of vitalized rubber.

The Goodyear Tire & Rubber Co. showed tires with straight sides, and also oversized tires. The "No-rim cut" features mark this line. The anti-skid tread is made up of triangular shaped studs. These tires are made by the double-cure process.

The B. F. Goodrich Co. displayed a large line of tires, among which were the "Goodrich Safety Tread" and "Goodrich Cord Tires" for electrics. In the latter cord replaces fabric. These are both new developments of this company. They also showed a new plug for mending punctures, resembling a collar button in appearance and method of insertion. This instantly closes a puncture. They also had a self-vulcanizing patch.

The Seamless Rubber Co. had a straight-side or clincher tire. They are made plain or safety tread. They have a series of cuts at each side of the centre of the tread, resembling a scaling ladder. The seamless tubes are of red and of grey rubber and are built without a seam.

The Firestone Tire & Rubber Co. had a new red inner tube. Their line of tires is marked "Non-Skid" diagonally across the tread. The abrupt angles and hollows of the letters grip the road and prevent slipping. Firestone cushion tires for electric pleasure cars have double tread and internal cavities.

The Portage Rubber Co. makes a heavy pneumatic tire of four and five-inch sizes, having from eight to ten plies of fabric. Durability and not speed is claimed of this style. Its non-skid tread has many edges and angles which grip the road in all directions. This is known as the "Daisy Tread."

The "Brown Scientific Non-deflating" tube, made by the Voorhees Rubber Manufacturing Co., is made in some respects similar to a casing. It is made upon a mandrel, the outer, or tread, half being of double thickness. On the inner side is placed a strip of extremely high-grade non-elastic fiber. It is then vulcanized, blown off the mandrel and turned inside out, thus placing the rubber inside, causing the rubber to compress sufficiently to effectually close any puncture.

The Double-Fabric Tire Co. makes the "Interlock" inner tire, which is made to be placed between the inner tube and the shoe. It consists of a substantial casing-like structure, which has a thicker portion where the interlock comes in contact with the shoe, and at the beads has two wide over-lapping flaps which serve to lock the device when the tube is inflated.

The Walpole Rubber Co. guarantees its tire against stone bruises and defects in manufacture. The construction, which is the basis for the stone bruise guarantee, consists of placing a gum breaker strip between the fabric and the tread one-eighth of an inch thick, tapering it down at the bead.

The Federal Rubber Manufacturing Co. makes the "Rugged-Tread." This has three rows of strong studs set equidistant upon the body of the tire.

The Continental Rubber Works, makers of the "Continental-Erie," "Liberty" and "Tribune" brand of tires, had an exhibit of these tires in plain and anti-skid treads, fitted for the Q. D. Clincher, and straight-side rims. Their tires are noted for their wearing capacity.

The Essex Rubber Co. showed a line of automobile and tire sundries such as blowout patches, inner sleeves, hook-on and lace outer boots, "Perfection" rubber goggles, red rubber tubing, radiator hose, gas-engine packing, brake lining and rubber spring bumpers.

The L. J. Mutty Co. had a line of "Numotor" fabrics in single texture for automobile seat covers, and also double texture with Pará rubber interlining for tops. These fabrics are made of cotton yarn, dyed in the fiber with a special dye, "Indanthrene" which will not fade. The single cloth comes 54 inches wide, and the double 60 inches wide, so as to eliminate the center seam in tops. It comes in all colors and is guaranteed absolutely waterproof.

The Standard Woven Fabric Co. showed the "Multibestos" Brake lining. This comes in all sizes and is interwoven with copper wire. Oils do not injure it, and it will not burn.

A. Schrader's Son, Inc., had their Universal tire gauge on exhibition, also the pencil type, which is very small, only 2½ inches long. Both of the gauges remain fixed so that they can be removed from the valve stem for easy reading.

The Overman Tire Co. exhibited a cushion tire of generous proportion and of new design. It is based on the flow of rubber. Such a tire requires a special rim to which the tire is bolted in the center near the base. There is a triangular cavity extending around the tire. This permits a flow of rubber inward. The tread is cut with alternating wedge-shaped indentations around the edge, which prevents skidding and allows the rubber to give under pressure.

The Racine Rubber Co. makes a "Trusty Tread," composed of three rows of elongated studs; those in the centre being set straight on the tread, the outer ones arranged irregularly; so that the breaks between studs do not come opposite each other.

The Swinehart Tire & Rubber Co. makes the "Keaton Depression" tread. These are kite-shaped depressions grooved in centre, and act like a sharp skate on the ice, making it impossible to slide sidewise. They also make the "Electrical Cellular" tire, which consists of a series of deep holes in a solid tire, forming a suction upon the road bed.

The entire Marathon line was new, for the Marathon Tire and Rubber Co. is a late entry into the tire field. The "Angle" tread is its most marked feature, and designed for non-skidding purposes; plain treads are also furnished. The company's inner tube is of red rubber, for which much is claimed by the tire-makers as an inner tube material.

A puncture-proof tire made by the Lee Tire and Rubber Co. was mounted on a bed of spikes, weighted with over half a ton upon the wheel. This tire has several layers of small round metal disks imbedded in the tread and interlapping each other with a thickness of rubber between. This is to prevent sharp objects from entering the tire. They also make the "Zig-Zag" tread, which grips the road with all the tenacity of chains. When the middle wears down the sides prevent the car from skidding.

The American Tire and Rubber Co.'s patented tube is reinforced on the side which comes next to the rim; the rubber being considerably thicker at that point, which affords protection against possible injury from pinching or friction with the rim. Their tubes are of red and grey rubber. They showed a line of blow-out patches, tire protectors, reliners, and their five-minute cure vulcanizing cement, which they claim will cure in that time, nor over-cure if left much longer. There was a large pneumatic tire without an inner tube. A new type of solid tire is about to be added to the line.

The Kelly-Springfield Tire Co. makes a "Kant-Slip" tread which is a new design, consisting of a bead running around the tire's greatest circumference, with small, raised crosses at each side and at close intervals. They have a full line of truck tires all of which are solid.

The Dayton Airless Tire construction consists of a tier of rubber blocks spaced apart within the casing, and supporting the tire. Freedom from puncture and blowout is claimed without loss of resiliency.

The Motz Tire and Rubber Co. displayed solid and cushion tires; the latter made with slant-wise bridges and undercut sides and used for electrics.

FAVARY CUSHION TIRE.

The Favary Tire and Cushion Co. had new cushion tires for pleasure cars and trucks. The former is made up of several layers of water-proof fabric supported by rests at frequent intervals around the rim. This in turn supports a double set of rocker blocks, which are mounted midway between the others to form a cushion. The solid tire, either smooth or non-skid, is fastened to this. The truck tires are made up of chains in place of fabric.

The Englebert Tire Co. makes the flat chevron non-skid, and leather steel studded tread. This is a part of the tire itself. This tire presents a flat surface to the road. These tires are made in Belgium.

The United and Globe Rubber Manufacturing Co. makes the "Globe Interlock" tires. These are made with the double bias in the construction of the carcass and are said to be exceedingly strong. They also make the "Globe Red" inner tube, which is guaranteed against oxidation.

The Russian Tyre Sales Co. exhibited the "Provodnik" tires in flat steel-studded or "Columb Tough Tread." This is composed of a section of tough black rubber at the wearing point of the tire.

The Braender Rubber & Tire Co. was distinguished by its "Bull-Dog Tread" tire, which is of a peculiar design built up on the regular tread, across which it forms an angled groove. This when pressed down to the road is said to form a vacuum and on wet or oily roads the raised bars secure a firm grip.

The Tyer Rubber Co. are makers of the "Hold-Tite" anti-skid. This tire is made up of two rows of T-shaped depressions, the heads of the T's abutting on an uncut section which extends circumferentially about the casing, and forms a great gripping power.

THE ANNUAL AUTO. IMPORTERS' SHOW.

THE Ninth Annual Exhibition of the Importers of foreign-made automobiles was held from January 2 to January 11, in the handsome and spacious ball room of the Hotel Astor. Some twelve exhibitors took part and about 35 cars were displayed. These exhibits, together with the crowd of visitors that daily frequented the show, filled the room, large at it is.

The wire wheels seemed to be generally used on these foreign cars. All of these wheels were of the clincher-rim type. Detachable wheels instead of detachable rims predominated. Both Rudge-Whitworth and Dunlop wire wheels appear to be in favor with the European makers. In addition to these wire wheels of foreign make the McCue wire wheel, made in this country, was also noticeable.

There was one wheel that was particularly worthy of attention—the Italian Isotta car with a metal wheel, entirely new to this country, stamped out of sheet metal in halves, welded together by electricity, forming a very strong wheel; lighter and more durable than wood, and practically indestructible. This is a detachable wheel with a clincher rim. The Renault car has a new wood wheel which detaches at the hub—a great improvement over the old demountable rim.

There was a variety of tires on those foreign cars, three of them of foreign make, the Michelin, with the straight sides; the Faure "Never-Skid" tire, reinforced with anti-skid plugs and intervening cross bars; and a red Russian tire, the Provodnik, with a novel tread of herring-bone effect.

At least half of the cars, however, were equipped with American-made tires, among them Firestone, with both smooth and "Non-Skid" treads; Goodyear, smooth and anti-skid; Morgan & Wright clincher, with chain pattern running around the tire; Hartford, smooth; United States quick-demountable rims, with "Nobby" tread; Republic, with "Staggard" tread, and Diamond, with smooth tread. Tire sizes ran from 36 x 5 inches to 30 x 3½ inches—or in metric measure, from 935 x 135 to 760 x 90.

MORE RUBBER IN AMERICAN THAN EUROPEAN TIRES.

According to United States Consul Albert Halstead, the sales in England of American tires have been less important than might have been expected from the fact, that there is more other rubber in the American article than in the British or European product. In the latter there is only 7 to 10 per cent. of rubber in the outer casing, and 35 per cent. in the inner tube; rubber substitutes and fillers being extensively used.

Mr. Halstead recommends preliminary investigations as to the exact requirements of the English market, followed up by extensive advertising and other introductory measures. Results of hill climbing and other tests form valuable material for such campaigns.

Trained organization in England, following the tactics of British and other European makers, is absolutely necessary for American firms wishing to introduce their tires in England. Success, though possibly delayed by the hold of British and Continental tires on the market, will, it is urged, eventually be attained, if American tires are as good as has been claimed.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

BUSINESS generally has started on the new year with a confidence in the future which belies the prophecies of the pessimist, who is superstitious of the number thirteen, as well as the dejected individual who augurs calamity because of the coming change in the political control of the government. The outlook in all lines of rubber manufactures seems excellent, with only the footwear industry feeling an uncertainty. As a rule, the purchases of rubber boots and shoes last spring and summer were very large and highly satisfactory, and stocks held by jobbers and retailers were full. The mild winter that has prevailed in New England has been far from satisfactory, and while stocks have been moved to some extent, it will take several good storms to reduce these stocks to a satisfactory basis.

But if the shoe men have not been favored, the waterproof clothing manufacturers have certainly profited by the state of the weather, and practically every factory is rushed with orders, and salesmen now out are refusing orders unless a longer time than usual is allowed to fill them. Mechanical lines are going better than last month, perhaps because the mill industries, after inventory, found need of new material. Druggists' lines of rubber goods are in excellent demand; in fact, some of the larger syndicate drug stores are competing with each other in a specially lively manner, and running large advertisements, almost exclusively of rubber goods, offering these at cut prices. Certainly all lines with the above mentioned exception, are in excellent shape for a good business this year.

* * *

W. H. Palmer, of the United States Rubber Co., after years of service in Malden and Boston, was transferred to a higher position in New York late in 1911. Mr. Palmer had taken a very active interest in Mount Vernon Lodge, F. A. M., of Malden, and was "in line" for the chair of Worshipful Master. The lodge elected him to this office, and during 1912 Mr. Palmer made monthly flying trips to Malden to preside at the regular communications of the lodge. When his term expired, and he was succeeded in office by another, the Lodge, in recognition of his unusual exertions in fulfilling his duties, voted him a life member and presented to him a beautiful jeweled Past Master's badge, of which he is deservedly proud.

* * *

Captain Francis H. Appleton, president of the Rubber Reclaimers' Club, in a recent interview tells of the success of that organization:

"At the mettings general business has been discussed, and each member has become so well acquainted with his competitors that the result has been most advantageous to the trade at large.

"The discussions have resulted in formulating ideas which have been of advantage to the entire rubber business, so that today there is an understanding between the seller of rubber scrap and the buyer, so that the old troubles which formerly existed in regard to poor packing, have been almost entirely eliminated. For instance, today a live dealer understands that a 'no-name' or 'unguaranteed' tire will not be accepted as a good delivery; therefore, I have to say, as I have said on many occasions, that these trade organizations are decidedly beneficial in every way.

"The year 1912 has been a phenomenal one, not alone for the Reclaimers of Rubber, but for the rubber trade in general. The volume of business has been great, but the percentage of profit, owing to the high prices which have prevailed in the scrap market, has been smaller than in previous years; but in the aggregate, I think I can say in all truthfulness, that never has there been so much business done, and never were the manufacturers in a more healthy condition."

* * *

James H. Stedman, treasurer of the Monatiquot Rubber Works Co. was the donor recently of a fine pipe organ to the Congregational Church at New Sharon, Maine, as a memorial to his mother. It was dedicated with impressive exercises, the Rev. Dr. Beach, president of the Bangor Theological Seminary, officiating. The church was built by ancestors of Mr. Stedman and is located in the town, the home of his people for many generations.

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Boston is having an epidemic of small burglaries and sneak-thieving. One of the breaks was at 60 Pearl street, where the Manhattan Rubber Co. has its office and stores. Thieves forced the door with a jimmy, broke the glass in the door leading to the inner office, pried open six or eight desks, searched the entire office, even going through the pockets in the office coats left there, yet there seemed to be nothing carried away of any importance.

* * *

The many friends of Arthur W. Stedman, of this city, will sympathize with him in the lost of his wife, Mary P. Stedman, who died on Saturday, the 18th of January, after an operation. She was the daughter of the late S. Prescott Shepard, a well-known dry goods dealer of Boston, and Lucy P. (Innes) Shepard. She was married to Mr. Stedman in 1883, and for several years lived in Brookline, but later the family removed to the celebrated "Weld Farm" in West Roxbury. She leaves, besides her husband, one son, Arthur W. Stedman, Jr., who is now at school, preparatory to entering Harvard College.

* * *

Another well-known rubber man was similarly afflicted last month. Mrs. Emily J. Pike, wife of Chester J. Pike, died at her home in Medford on January 17, after a long illness. For several years she was afflicted with Bright's disease, and last September was so stricken that she only occasionally rallied, and only for short periods. The interment was at Oak Grove Cemetery on Sunday, the 19th. Mr. Pike has a host of friends in the trade who will condole with him in his affliction.

* * *

Will G. Snow, the bright advertising manager of the International Silverware Co., prints every month a paper containing extracts and reprints from the daily and weekly newspapers of the year 1847. It is an interesting little sheet, and contains many facts which might otherwise be lost to memory. One item Mr. Snow unearthed from a Connecticut local reads:

"The editor of the New London 'Star' has been shown a one dollar bill, of the New Haven County Bank—genuine—the paper of which was of India rubber, manufactured in Lisbon. It was slightly elastic, but little thicker than the ordinary paper, and perfectly impervious to water. Indeed, to so great perfection had it been brought, both in the filling up, and in the ink used for the signatures, that it seems to have defied the common, and even some uncommon methods of obliteration. It had been soaked and boiled in strong potash lye, with scarcely any perceptible effect."

We all know about that famous book of Goodyear's, printed on leaves of soft rubber, but how many of us ever heard of a rubber bank note?

* * *

Richmond L. Chipman, for nearly 15 years with George A. Alden & Co., Boston, has been transferred to the New York office of the concern, where he will occupy a still more important position than that which he has hitherto filled. Mr. Chipman is a bright, active young man with a pleasing personality, who will doubtless make for himself as large a circle of friends in the big Metropolis as he leaves in the Hub. He has not yet moved his family to New York, but is

already "at home" at the New York headquarters of this well-known crude rubber house.

* * *

W. H. Reilly, for sixteen years with the Boston Rubber Shoe Co. at its Boston office, was transferred to the office of the Hubmark Rubber Co. on January 1. On leaving his old position, his associates in the Essex Street office presented to him a handsome gold Waltham watch, suitably engraved, and a fine gold chain. Mr. Reilly is, naturally, proud of the gift, but more so of the letter from Selling Agent Charles A. Coe, which accompanied it.

* * *

I notice that the Davidson Rubber Co. is advertising for a "progressive man as technical superintendent, who must be experienced in rubber analysis of all kinds and practical factory control," and also desires "a cost expert with first-class experience in manufacturing costs."

* * *

Interest is increasing each week in the work of the Rubber Tire Bowling League, which is nearing the end of its season. Ten teams, representing twelve tire concerns, have been bowling each week since the first of November, and the tournament will end March 6, the eighteenth week, each team rolling off two matches with each of the others. Some wonderful records have been made. Of course, it is too early to name the winners. The prizes are $25 for the highest team; $15 for individual high average, and $10 each for individual three string and individual single string. A banquet will be given the entire membership at the end of the season.

* * *

The Patterson Rubber Co. factory at Lowell is up four stories at present writing, and President John S. Patterson predicts that the factory will be making tires by the middle of this month. It will be a good deal of a hustle to fulfil this prophecy, but the men of this company know what it is to hustle. The factory nearing completion will be 250 by 63 feet, and plans are ready for a similar building to be erected next fall. The company owns ten acres of ground, and will have plenty of chance to expand as business warrants.

* * *

The Walpole Rubber Co.'s factories are all running at full capacity. The company has declared a regular quarterly dividend of 1¾ per cent. on preferred stock and 1 per cent. on common stock, payable January 15.

* * *

The B. & R. Rubber Co., of East Brookfield, is making important improvements in its factory at North Brookfield, Massachusetts, installing elevators, and removing the shipping room to a more convenient location, thus facilitating both the manufacture and shipment of goods.

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

THE Miller Rubber Co. has placed on the market a new inner tube to meet the present demand for a very high grade article. They are also placing on the market a new non-skid tread, which consists of a series of projections on the outer side of the tire, with a construction in the middle of the tire which gives it the wearing service of an ordinary flat tread tire; thus giving an increased amount of mileage and at the same time retaining an excellent non-skid feature based on the interlocking action of a cog wheel.

This company has opened a new sales agency in New York under the name of the Miller Tire Sales Co., Inc. It is in charge of H. C. Mills, who for ten years was New York sales manager for the Diamond Rubber Co., and H. C. Miller, who was formerly connected with the Diamond Sales Agency in New York, and for two years had charge of the Diamond Sales Agency at St. Louis.

* * *

The Portage Rubber Co. of Barberton held its annual stockholders' meeting Jan. 20, electing the following directors: James Christy, Wm. Leary, W. W. Wildman, A. S. Mottinger, D. A. Doyle, M. S. Long, J. W. Miller, J. D. Raw, Fred H. Snyder, Edward Langenbach, John Kerch, Dr. O. S. Weldy. The following officers were elected: Jas. Christy, president; J. W. Miller, vice-president; A. S. Mottinger, secretary; W. W. Wildman, treasurer and general manager.

The yearly report of the General Manager showed the business of the past year to be good and the outlook was of the best for a record-breaking year. The company has firmly established its tire trade, and its orders more than fill its limited capacity. The new building which was recently completed will be occupied in a few days, and it is believed by the directors that it is only a matter of a few months, before business will compel the erection of more buildings.

* * *

A. H. Marks, of the B. F. Goodrich Co., who has been in Johns Hopkins Hospital, Baltimore, Md., with acute nervous trouble and heart complications, was announced to be in a "fairly satisfactory condition" on January 21.

* * *

The Electric Reclaiming Co., of Barberton, recently held its annual stockholders' meeting. The following were elected directors: E. M. Gammeter, F. A. Brodbeck, Fred W. Albrecht, Chas. Fastnight, Jos. Dangel, Wm. Byrider, F. R. Moore, Geo. W. Blackburn, E. R. Albrecht, J. M. Sumner, E. E. Crook. The following officers were elected: Emil Gammeter, president; Francis A. Brodbeck, vice-president; Fred W. Albrecht, secretary and treasurer; C. E. McLain, assistant treasurer; and R. W. Haines, general manager. E. R. Albrecht of Massillon, and J. M. Sumner of Akron were elected to fill vacancies on the board caused by resignation of Shreve Clark and H. A. Backderf.

* * *

The Mohawk Tire and Rubber Co. has been organized and has bought the Stein Double Cushion Tire and Rubber Co. plant and machinery, patents and good-will. The new company is organized with a capitalization of $350,000; $250,000 common stock and $100,000 7 per cent. cumulative preferred stock, redeemable at 110 with accrued interest after January 1, 1916. The Stein plant is located in East Akron, near the factory of The Goodyear Tire and Rubber Co. It consists of a 2½ acre tract of land, a brick factory in good condition, with switching facilities, and water; having a present capacity of between 75 and 100 tires per day. The company is to be organized without any water in the stock.

The president of the new company will be R. M. Pillmore, who for a number of years was general manager of The Akron Grocery Co., and is at present Director of Public Service of the City of Akron. The superintendent of the plant will be S. S. Miller, for many years connected with the manufacturing end of The Kelly-Springfield Tire Co., known in Akron as The Buckeye Rubber Co. Among the directors of the new company are C. K. Sunshine, president of the Sunshine Suit & Cloak Co., Cleveland, Ohio; C. D. Paxton, Cleveland, Ohio, State Agent for the Jackson Auto Co.; R. M. Pillmore and J. K. Williams of the J. K. Williams Foundry and Machine Co., Akron, Ohio., noted rubber machinery manufacturers; S. S. Miller and F. J. Mishler, vice president of the Citizens Savings & Loan Co. The company expects to be able to place tires on the market to take care of the spring trade.

* * *

J. W. Mowe has resigned as manager of the Detroit branch of The Firestone Tire & Rubber Co., where he has become well acquainted with the tire trade, and has become associated with

the sales force of the Goodyear Tire & Rubber Co. He is quiet and unassuming and has been very successful.

H. A. Coffin, a man of experience in the automobile business, has been given charge of the Detroit branch of the Firestone company. The company has opened new branches in the following cities: Columbus, Ohio, Geo. Richards, manager, formerly with the Chicago branch; Houston, Texas, H. W. McFadden, manager; Milwaukee, Wisconsin, John E. McGinnis, manager; Cincinnati, Ohio, E. F. Firestone, manager; Memphis, Tennessee, W. C. Ward, manager; Salt Lake City, Utah, M. L. Turbush, manager. The needs of the trade demanded larger quarters in Philadelphia, Buffalo and Chicago. The new offices of the company in Philadelphia are located at 304 North Broad Street; in Buffalo, on Main street, in the automobile section; and in Chicago at the corner of Nineteenth street and Michigan Ave.

* * *

The Y. M. C. A. of Akron is offering several special courses for rubber workers. The courses are designed to give the rubber worker an opportunity to obtain a fundamental knowledge of the appliances and materials with which he works. These lectures are being conducted by some of the most noted manufacturers of the city; among whom are J. H. Vance and W. R. Miller, of the B. F. Goodrich Co., and L. M. Bourne, Dr. Millard and E. R. Hall, of the Goodyear Tire & Rubber Co.

The following is an outline of one of the main rubber courses:

PART I.—INSTRUCTION IN POWER AND APPLIANCES USED IN MANUFACTURING IN GENERAL.

I. Power Elements.—Instruction in methods of producing, and characteristics of
- a. Steam.
- b. Electricity.
- c. Air.
- d. Hydraulic pressure.

II. Transforming power elements into usable horsepower power plant:
- a. Boilers.
- b. Steam engine.
- c. Dynamo-generator to motor.
- d. Air compressor.
- e. Pumps, accumulator.

III. Transmitting horsepower to factory machines:
- a. Mechanical drive.
- b. Electric drive, switchboard.

IV. Miscellaneous appliances:
- a. Elevators, conveyors, trucks.
- b. Blocks and tackle, chain blocks, air and electric hoists, cranes.
- c. Safety devices, fire extinguishers.
- d. Lighting, heating, ventilating.

PART II.—INSTRUCTION IN RUBBER AND COMPOUNDING PIGMENTS.

I. Rubber:
- a. Description of various grades.
- b. Where and how grown.
- c. Value and importance of careful handling of scrap, etc.
- d. Scrap rubber, reclaiming, etc.

II. Compounding pigments:
- a. Description of various materials.
- b. Their action in connection with rubber.

PART III.—INSTRUCTION IN THE THEORY, USE AND CONSTRUCTION OF THE VARIOUS SPECIAL APPLIANCES USED IN THE RUBBER INDUSTRY.

I. Washing and drying.
II. Compounding, and mixing, or milling.
III. Calendering, cementing and impregnating.
IV. Preparing stock and vulcanizing the various rubber products:
- a. Tires and automobile accessories.
- b. Molded goods, rubber belting, etc.
- c. Insulated wire, hose, etc.
- d. Boots and shoes, druggists' sundries.
- e. Hard rubber, balata and gutta percha products.

PART IV.—CONCLUDING LECTURES.

I. Factory hygiene with special reference to rubber factory conditions.
II. Review of the course.
III. Lecture on the present status and future outlook of the rubber industry.

The Cleveland Automobile Show, held the week of January 4-11, 1913, on the lower floor of the new Wigmore Building, was the most successful and best patronized auto show ever held in Cleveland. The value of the cars and equipment on display was placed at over $2,000,000, and the various salesmen representing the automobile factories report large sales. The various Akron rubber companies were well represented. The success of this show depended to a large extent on the general manager, Fred Caley, and on Fred Wood, both of whom were formerly Akron men, who have had years of experience in the automobile business.

THE RUBBER TRADE IN CINCINNATI.

By a Resident Correspondent.

AFTER a brisk trade covering the fall months and the holidays the rubber business locally has put on the brakes and slowed down, though not more than is usual at this time of the year. Local houses, despite the temporary lull in trade, are taking advantage of the slack season and making preparations for the opening of trade in the spring. Indications point to a banner year for the rubber industry, and naturally efforts are being put forth to meet the unexampled trade which is promised. Many of the managers of the branch houses of the big rubber companies are of the opinion that the opening of spring trade will find the consumption overtopping the production.

* * *

C. J. Butler, vice-president of the United States Tire Co., was a visitor to the city the past month, stopping over for an examination of local conditions and prospects and inspecting the new branch house of the company which was recently opened. Mr. Butler expressed himself as pleased with local conditions and after a brief stay left for the South for a period of recuperation with his family.

* * *

It is reported in local financial circles that the Grasselli Chemical Co., which had its origin in Cincinnati, but which now operates more than 15 plants throughout the country for the manufacture of heavy chemicals and zinc products used by the rubber industry, will soon call a meeting of its stockholders to authorize an increase in its capital stock, which is now $7,500,000. The company recently gratified its stockholders by handing out a melon consisting of its unissued common stock.

* * *

A recently formed establishment, which is new in its line in this city, is that of the Automobile Tire & Tube Hospital. The hospital is located in the rubber tire and automobile sales district, being located at 907 Race street—head physician, W. M. Galt; chief interne, H. V. Hague. Both men are practical rubber men, having had wide experience in the manufacture of rubber tires.

* * *

The Republic Tire & Rubber Co. has moved its local sales rooms from 915 Race street to 907 Race street, occupying part of the rooms which have been leased by the Automobile Tire & Tube Hospital.

* * *

Much interest is being manifested by local rubber tire men in the automobile show to be held by the Automobile Dealers' Association of Cincinnati. While the tire manufacturers will not have individual exhibits at the show, they will, however, be represented by the local supply and auto accessories dealers

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To meet the heavy demand for rubber clothing and rubber footwear brought on by the flood of the Ohio River January 12, the Schaefer Rubber Co., which operates one of the largest retail rubber stores in the Middle West, kept its salesrooms open Sunday and every night in the week during the high water,

in order to supply the needs of those who were affected by the flood. This enterprise on the part of this company merited high praise from those who were obliged to equip themselves with necessary clothing to combat the flood to save their property.

* * *

The L. & M. Rubber Co., of Carrollton, Ohio, filed notice with the Secretary of State that it had increased its capital stock from $120,000 to $500,000.

* * *

R. J. Firestone, general manager of the Firestone Tire and Rubber Co., recently spent several days in this city looking over the new branch opened by the company in this city. M. E. Palmer, traveling auditor of the Firestone Tire and Rubber Co., is spending several weeks here assisting in the arrangement of the office of the new branch of the company which was opened the first of the year.

This company has selected generous quarters for a direct factory branch in this city. The new branch is located at Ninth and Sycamore streets. It will look after the business of the company in Southern Ohio, Southern Indiana, Kentucky, West Virginia and Tennessee and is in charge of E. S. Firestone. The company in its new branch has a floor space of 5,000 square feet. A section of this space is given over to a modern-equipped office, while another section is devoted to a fully equipped shop. The balance of the space is used in carrying stock, which is said to be the largest stock of rubber tires and rubber accessories carried by any local branch house. The operation of a shop in connection with the branch is a distinct feature in this city and bids to be a popular move on the part of the company, as it is arranged so that automobiles can be run into the shop and tires and rims attached without the necessity of owners taking them to repair shops.

"The outlook for the automobile industry was never so bright as it is right now," said Mr. E. S. Firestone. "Cincinnati is one of the best cities in the country for a branch and we intend carrying a $150,000 stock of tires with other accessories."

THE RUBBER TRADE IN RHODE ISLAND.

(By a Resident Correspondent.)

A NOTICEABLE slacking up in some branches of the rubber trade in Rhode Island developed during the early part of this month. The all-night force in the wire department of the National India Rubber Co.'s plant was discontinued, and the Consumers Rubber Co.'s plant was closed recently for a week to permit the making of repairs anl numerous improvements.

Manager Le Baron C. Colt, of the former plant, stated that as soon as inventory-taking was finished work would be rushed in the wire plant. He said he expected increased demands for the product. "The fact that there are no wire working forces in the open during the winter weather in the northern states cuts off much of the business," he said. "Later the lack of orders from northern business men will be counterbalanced by the extension of wires in tropical countries."

Although 300 men were let go from the night shift, the day force was kept busy.

* * *

Col. Samuel P. Colt was reëlected chairman of the board of directors of the Industrial Trust Co., one of the largest banking institutions in Rhode Island, at the annual meeting of stockholders, held January 21. The meeting was the second anniversary of the fight which he had in 1911, in trying to regain control of the institution.

* * *

United States Circuit Court Judge LeBaron B. Colt was elected United States Senator by the Rhode Island Legislature on January 21. His selection was a foregone conclusion several weeks before. The vote in the Senate was 32—5 in his favor, and in the House 56—37—7. In the Senate he had one opponent, and in the House two. His term will begin March 4. He succeeds George Peabody Wetmore. Judge Colt is a brother of Samuel P. Colt. He was born in Dedham, Massachusetts, June 25, 1846, and has been a Federal judge for more than 30 years.

* * *

Agent LeBaron C. Colt, of the National India Rubber Co., was the recipient of a handsome Davenport couch Christmas. It was a present from the heads of the selling departments. James W. Franklin, superintendent of the shoe and arctic departments, was given a book case by his foremen and clerks.

* * *

The Consumers' Rubber Co., at Bristol, has resumed the work of manufacturing insulated wire. In November the work of getting the old departments at the factory on Wood street ready for use was begun. This was formerly an important part of the product of this concern, and it is expected that it will be made so again by the people who are now in control. This company has also started to make its own cardboard packing boxes, instead of letting contracts for the work. The industry is being operated on a small scale at present, but plans are under way for its enlargement.

* * *

After exhaustive examinations, conducted by experts, because of complaints from people in West Barrington, the International Rubber Co. in that town is making a vigorous effort to prevent unpleasant odors from issuing from its plant. A filtration plant for the dyeing waters is to be installed, and a drain pipe is to be laid across Park avenue to connect with another drain pipe which leads to the shores of Narragansett bay a quarter of a mile to the westward. Other improvements are being installed by this concern. A 350-horse power steam engine is being put in as a substitute for a 75 horse power machine which has been furnishing power for a part of the plant.

* * *

Arthur L. Kelley, president of the Mechanical Fabric Co., who is also head of the Narragansett Electric Lighting Co., is making a strong fight to retain the exclusive right of that company to furnish power and light in Providence. A hydro-electric concern is seeking a franchise in the city. Recently the following rubber companies petitioned the City Council to accept an offer of lower rates made by the Narragansett Co.: Mechanical Fabric Co., Revere Rubber Co., Improved Seamless Wire Co., and Glendale Elastic Fabrics Co.

* * *

Because of the rapid increase in its business the Davol Rubber Co., has started the construction of a big addition to its plant at the corner of Point and Eddy streets, Providence. The new structure, which is to be 281 ft. x 50 ft., is to be of brick and steel. It will cost $60,000, and will be located on the Eddy street side of the plant, where a long row of cottages was razed several months ago to make room for street-widening. The building will be three stories high. Work has been started, and, because of the open weather, much progress has been made in putting in the concrete foundations. The building will probably be completed during the late spring.

Charles J. Davol, president and treasurer of the Davol Rubber Co., was elected to the directorate of the Homeopathic Hospital at the annual meeting, held January 15.

* * *

The Revere Rubber Co. closed the year 1912 doing a tremendous business. In addition to a variety of lines this concern is the Providence branch of the United States Tire Co. For a long time it has been operating 24 hours a day and has been increasing the number of employes as fast as capable men could be obtained. Many additions and changes have been made to the property, and at present the power plant is being improved. A new boiler room is being put up. It is on the Valley street side of the plant.

J. Murray Percival, who was for many years assistant foreman of the cutters at the Alice Mill of the Woonsocket Rubber Co., left that position early this month. A watch and fob were presented to him by his fellow employes.

* * *

Mrs. Isabella E. Norris, daughter of the late Francis M. Dimond, Governor of Rhode Island in 1853, and mother of Samuel Norris, of New York City, secretary of the United States Rubber Co., died at her home in Bristol, R. I., on November 26. She was in her 86th year. Her last illness was short, death being due principally to old age.

Mrs. Norris was born in Providence. She went to Bristol to live when a girl. She was long active in work of St. Michael's Episcopal Church in that town.

* * *

Clifton A. Hall, 87 years old, died at his home, 380 Benefit street, Providence, January 12. He was one of the oldest architects in New England, and was the originator of modern well-lighted manufacturing establishments. One of his early productions was the plant of the National India Rubber Co., Bristol.

* * *

T. O. Doyle, overseer of dyeing at the British Hosiery Co.'s plant, has accepted a position with the International Rubber Co. at West Barrington.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

IN all but two lines of the rubber industry in Chicago, manufacturers, jobbers and dealers report good business for the month of January. Despite the fact that the weather has been decidedly inclement since the middle of the month, which is due to a heavy snowstorm and subsequent rains, footwear has been moving sluggishly and this condition of affairs has caused keen disappointment in all quarters. It was the general belief that the footwear market would show a degree of activity after the advent of the heaviest snowstorm of the season, but jobbers and dealers report that there has been but a slight improvement over December, and they do not look for much activity until the advent of spring.

Rubber hoof-pads is the other line that has failed to show any evidence of activity, and dealers do not hesitate to say that the sales are not near so good as for the same period last year. However, they do not overlook the fact that severe cold weather was the programme in Chicago for a period of six weeks last year, while during January of this year the temperature at no time reached a low mark. But the dealers in hoof-pads say that the market has shown a gradual improvement since the middle of January, and if the weather would change to colder and remain that way for a week or more, there would undoubtedly be an activity that would to a degree make up for the sluggish condition of the market since the beginning of winter.

Incidentally it may be stated that the Society for the Prevention of Cruelty to Animals and two prominent Chicago newspapers have been active of late in urging upon drivers the necessity of providing hoof-pads for their horses. The newspapers have pointed out that the horses lose at least 60 per cent. of their energy in trying to maintain their feet on the slippery cobblestones and asphalt, and that consequently drivers are alone to blame because of the fact that so many of them neglect to provide foot pads. Hoof-pad dealers feel that if the teamsters can be made to realize the truth of the assertions made by the newspaper, the market should show an unusual activity during the remainder of the winter.

But the real feeling of cheer appears to be monopolized by the mechanical rubber goods manufacturers, jobbers and dealers, who report that they could not be better satisfied with the sales that they have made of almost every item since the first of the year. Furthermore, they state that the mechanical rubber goods market is showing constant improvement and they anticipate a heavy spring business. Reports from all of the steel mills in the vicinity of Chicago are that orders are coming in much faster than anticipated for this season. Another pleasing feature is that none of the mills has been laying off men, but on the contrary are working full time. This state of affairs is very encouraging to mechanical rubber goods men, and they assert that they are receiving larger orders from the steel mills at the present time than at the same period last year. There is also much activity in western mines, which is largely responsible for the present prosperity of Chicago mechanical rubber goods manufacturers.

"So far as our house is concerned, the demand for the various items of mechanical rubber goods is about the same as for this period of last year," said a representative of the Quaker City Rubber Co. "Orders for tires have been coming in stronger than we had anticipated, and this is due to the more general use of automobiles in Chicago during the winter season. Mining business is good in certain sections, and a most gratifying feature is that the large steel mills at Gary, Ind., South Chicago and other points contiguous to Chicago are working full force."

* * *

The fact that automobiles are in such general use in Chicago during the present winter has caused much rejoicing among those who make a specialty of repairing tires. It is said that the number of automobiles in daily use in Chicago since the advent of the present winter far exceeds that of last year, and as a result repairers have about all the work that they can handle conveniently. One prominent repairman has found it necessary to increase his working force, and he asserts that his business is about twice as large as last winter. In the past it had been the belief of automobile owners that the machines were merely a dry-weather convenience, and that it would be the height of absurdity to drive them through the slush and snow of winter. But investigation at most garages reveals that few owners of machines have abandoned them for the winter, and that the number in storage is much smaller than last year. Garage men point out that an automobile can be used in the worst winter weather when it would be a crime to use a horse.

* * *

The recent seasonable weather has caused unusual activity in clothing and druggists' sundries. Business in these two items is reported as much better than for the same period last year. The prospects for heavy trade in clothing were not particularly bright at the beginning of the new year. Most dealers were well stocked and manufacturers and jobbers did not look for large orders until the middle of February at the earliest.

* * *

The scrap rubber market held its own during the month of January, and from no quarter is complaint heard that the outlook for a heavy spring business is not good. The scrap rubber industry has been developing rapidly in Chicago during the last twelve months, and most of the concerns have found it necessary to employ additional help.

THE RUBBER TRADE IN SAN FRANCISCO.

By a Resident Correspondent.

NOTHING could have been more cheering than the rains which have been falling during the past two weeks. This has brought the rainfall for the season well up to the average throughout the state, and its timely coming has assured good crops for the farmers, to say nothing of the increased demand for rubber shoes and clothing. The rains were so late in coming this year that merchants in the interior had scarcely drawn at all on their stocks of rubber clothing and shoes. But during

the past few weeks they have been making up for lost time. They are also coming in with some payments which in some cases have been long past due. They always prefer to do business on the jobbers' capital if possible. Consequently the jobbers feel that conditions are much better than they were a few weeks ago, and that the outlook is favorable.

* * *

The Gorham-Revere Rubber Co. held a big gathering of Pacific Coast salesmen at San Francisco on the 20th and 21st of last month. There were 65 men in attendance and it was the largest gathering of its kind ever attempted on the Pacific Coast. There were salesmen from the company's branch stores at Spokane, Seattle, Tacoma, Los Angeles, Portland and other points; including one salesman each from Australia and Alaska. C. C. Case, vice-president of the Revere Rubber Co., attended the meeting and addressed the men.

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The Cradley Rubber Supply Co. has moved from the store at the foot of California street to a new and better location at 315 Market street. Here the firm is looking more to the retail trade than before, owing to the prominence of the location, and many lines of handy retail articles have been added to the stock, including rubber boots and shoes.

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W. E. Griffiths, the secretary of the American Rubber Manufacturing Co., died on Saturday, the 11th of January, very suddenly and unexpectedly. He was a very popular man in the trade and his death is greatly regretted by all who knew him.

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Mr. R. H. Pease, senior, president of the Goodyear Rubber Co., and Mr. Watson, the treasurer of the company, started last week for Portland to make their regular winter tour of inspection. Mr. R. H. Pease, Jr., reports that the present rains will make a big difference in the boot and shoe business for this year.

* * *

W. T. Powell, Pacific Coast district manager for the Goodyear Tire and Rubber Co., has returned to San Francisco from his business trip through the Northwest territory. He reports that the branches located in Portland, Seattle and Spokane are enjoying a flourishing business. His company has four branch houses in California. "We expect to soon open branches in Fresno and Sacramento also," he said, "and this will give us a larger number of agencies in active operation than any other tire company on the coast."

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The Chanselor & Lyons Co., a well known automobile supply house, has recently incorporated with a capital stock of $200,000.00. The incorporators are W. G. Chanselor, W. A. Avery, P. H. Lyons and H. D. McCoy.

* * *

Henry Auger of the Chanselor & Lyons Co., has left with his wife for a trip to the manufacturing centers of the east. Mr. Auger was recently made the head of the purchasing department of this company, and the fact that the company has incorporated for the purpose of centralizing its business management in San Francisco for all of the branch stores, makes this position all the more important.

* * *

The Fire Commissioners of San Francisco have accepted the bid of the Bowers Rubber Works of this city for 20,000 feet of 2¼ inch hose, the total cost being about $17,000.00.

* * *

The Diamond Rubber Co. is making an important advertising feature of the immense new electric sign which the company has recently erected on the top of the Hughes Building on Market street. Th advertisement shows a great revolving wheel, and advertises the non-skid qualities of the Diamond tire. Then in the Sunday papers the company has taken full pages showing a photograph of the electric sign standing high in the air. To further draw attention to the tires an offer of $100.00 cash is made to the person who can guess the number of electric lights actually used in the display.

* * *

The statement was made in this column in the December issue that Mr. Henry Byrne was no longer connected with the Quaker City Rubber Co., having recently accepted a position with the Plant Rubber and Supply Co. Mr. Byrne writes from Los Angeles that the only change that has been made in the Squire & Byrne Rubber Co. is this: that Mr. Squire has taken charge of the San Francisco office, while Mr. Byrne has taken the management of the Los Angeles branch. The firm still represent the Quaker City Rubber Co., in California.

THE RUBBER TRADE IN TRENTON.

By a Resident Correspondent.

PRESIDENT-ELECT WILSON'S statement anent "Big Business" at a recent dinner in Chicago, and his later utterances against Wall street, have not had any material effect on the rubber industry according to the declarations of local manufacturers who, now that the anxiety attendant upon a Presidential election has subsided, have settled down to business in earnest. The opinion prevails that the year will be fully as prosperous for the local rubber industries as was 1912, and many of the factories are reaching out for trade in new and untried foreign territory. Practically all of the local plants are running full-handed and many are working day and night shifts of operatives. The Thermoid Rubber, United and Globe Rubber, Woven Hose Co., Empire Rubber and Tire Co., Essex Rubber Co., Home Rubber Co. and Joseph Stokes Rubber Co. are working day and night to keep abreast of the volume of orders.

* * *

Representatives of the Department of Labor at Washington who made inspection of the local manufacturing plants recently, declared through the newspapers that the factory laws as regards sanitation, blowers and employment of boys and girls were obeyed more closely in this city than in most manufacturing centers.

In practically all of the local plants much attention is given to sanitation and safety of the operatives. The Employers' Liability Law, which has been in force in this State the past year, has caused many concerns to exercise great care in the safeguarding of the employees. The majority of the plants have installed lunch rooms for the operatives and provided other accommodations which are appreciated by the employees.

* * *

The Empire Rubber and Tire Co. has marketed a new tire which bids fair to be a tremendous seller. The factory managers have been working to perfect this new tire for the past six months, and hard road tests have convinced the designers that the tire is a success in every particular. Much favorable comment on it was heard at the recent Garden Show.

The large number of orders booked for this new make of auto tire will engage the running capacity of the local plant for some months to come, and with the orders for other makes of tires and accessories means a solid year's work ahead for the operatives, it being necessary to work day and night shifts in some of the departments to get out the orders for early delivery.

In the manufacture of the new "Red Tire" the Empire company adopted the same compound that made the "Imperial Empire Tire" famous in the auto world. While the new tire commands something like 15 per cent. above the price asked for ordinary tires, the demand for the "Red Tire" gives the company the impression that the trade is perfectly willing to pay the additional cost; realizing that the durability of the tire warrants the additional outlay.

The life of the compound used in the new tire is regarded as phenomenal. Tubes six years old made by the Empire company are still in good condition and giving satisfaction. Auto dealers and others interested in the industry are firm in the belief that the Empire company has a "winner" in the new tire.

* * *

The Hamilton Rubber Co. is working full-handed in the effort to keep pace with orders. The three-story new addition to the plant is being used to its full capacity.

* * *

One of the busiest of the local manufacturing rubber plants is that of the Essex Rubber Co., which concern employs close to 200 operatives. The plant is being operated day and night, with orders enough to insure the operation of the factory with day and night shifts for the next six months.

The Essex Rubber Co. makes a specialty among other lines of automobile accessories, and at the recent automobile show in Madison Square Garden, New York, booked a large number of orders. The display of the Essex Co. at the Garden auto show attracted considerable attention. The company also exhibited at the recent rubber show, being one of the few rubber concerns of this section to make an exhibit.

The Essex company the past year made a successful bid for foreign trade, particularly in the Latin countries of South America. Large shipments to Cuba, Porto Rico, Panama, Brazil and Equador attest the success of the company in this territory. Rubber shoe heels and soles are some of the many specialties manufactured by this concern. Shipments are made to all sections of the world. Molded specialties are also included in the list of articles made by the Essex Co. In the past year the company has materially improved its plant.

* * *

Though working day and night shifts the firm of John E. Thropp's Sons is unable to keep pace with the many orders which are coming in for the new patent automobile tire-making machines. The patents on the machines are held by the De Laski & Thropp Circular Woven Wire Tire Co. of this city, the machines being invented by J. K. De Laski. These machines for the making of automobile tires have been on the market only a short time, but judging from the demand for them, are a success in every particular. One of these machines will turn out more tires in a single day than it is possible for four men to make in the same space of time.

Advices received at the local plant of the Thropp concern are to the effect that one of the machines in use in the plant of the Dunlop Tire and Auto Goods Company, Toronto, Canada, turned out seventy tires in ten hours with one man operating the machine. The Dunlop concern declared that the services of five men would have been required to make the same number of tires in ten hours. Seven of the patent machines are in use in the plant of J. Ellwood Lee, Philadelphia. In addition to the tire-making machine, the Thropp company is making a machine for the wrapping of tires and one for manufacturing tire molds.

* * *

The Thermoid Rubber Co. is making large shipments to France of automobile tire brake linings, used on the rear wheels of the machines. For the Paris market alone it is said the local concern has orders for close to 20,000 feet of brake lining. The tire department of the Thermoid plant is a particularly busy place these days. The company has arranged for a big display at the Chicago automobile show. The concern exhibited at the recent Garden show.

O. K. Patton, office manager of the Thermoid Rubber Co., has been promoted to the post of assistant manager of the Chicago branch, handling mechanical rubber goods. Frederick Wilson is in charge of the Chicago office. E. B. Knowles, of the Ray 'Bestos brake lining concern, Bridgeport, Connecticut, succeeds Mr. Patton as office manager of the local plant.

General C. Edward Murray, the guiding spirit of the Empire Rubber and Tire Co., tendered a dinner to the managers of the branch stores. The dinner was given in the Hotel Astor, Monday evening, January 20. Those present were Ray Paddock, of the Buffalo branch; W. H. Chadwick, of Boston; L. V. Richardson, of Philadelphia; J. B. Frisbie, of Cleveland; Charles Wyland, of Indianapolis; Howard Zelley, of Newark; E. B. McKay, of Chicago; W. M. Perrett, of Detroit branch.

The representatives attended the Garden auto show and made an inspection of the Empire plant during their visit to this section of the country, reporting the outlook for a big season's business as most promising.

British Crude Rubber Imports.

OFFICIAL statistics for calendar years, stated in pounds:

YEAR.	Imports.	Exports.	Net Imports.
1898	54,833,072	33,023,536	21,809,536
1899	50,360,912	34,284,320	16,076,592
1900	57,593,312	32,864,832	24,728,480
1901	52,245,088	32,904,704	19,340,384
1902	46,970,000	32,676,112	14,293,888
1903	54,443,760	37,658,768	16,784,992
1904	55,555,584	33,415,536	22,140,048
1905	66,464,944	37,464,112	29,000,832
1906	67,992,624	36,988,336	31,004,288
1907	74,736,928	39,090,912	35,646,016
1908	64,407,392	40,153,792	24,253,600
1909	78,406,944	44,567,488	33,839,456
1910	98,220,528	52,401,664	45,818,864
1911	101,466,400	63,978,768	37,487,632
1912	123,252,752	81,308,528	41,944,224

GUTTA-PERCHA.

YEAR.	Imports.	Exports.	Net Imports.
1898	7,082,656	1,151,136	5,931,520
1899	9,239,664	840,224	8,399,440
1900	14,118,608	1,709,792	12,408,816
1901	9,905,056	1,224,832	8,680,224
1902	9,395,568	1,190,784	8,204,784
1903	5,198,032	741,664	4,456,368
1904	3,056,256	890,624	2,165,632
1905	5,088,608	1,020,880	4,067,728
1906	5,966,352	973,952	4,992,400
1907	6,516,048	1,268,624	5,247,424
1908	3,575,936	521,920	3,054,016
1909	5,064,864	680,736	4,384,128
1910	10,870,048	762,608	10,107,440
1911	7,392,000	1,074,976	6,317,024
1912	6,435,072	681,968	5,753,104

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of the values of exports of manufactures of india-rubber and gutta-percha for the month of November, 1912, and for the first eleven months of five calendar years:

MONTHS.	Belting Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
November, 1912....	$217,405	$96,439	$681,900	$995,744
January-October ...	2,125,333	1,148,716	6,623,334	9,897,383
Total, 1912.....	$2,342,738	$1,245,155	$7,305,234	$10,893,127
Total, 1911.....	2,085,613	1,565,146	6,528,022	10,178,781
Total, 1910.....	1,918,611	2,094,016	5,193,806	9,206,433
Total, 1909.....	1,637,018	1,474,559	3,978,186	7,089,763
Total, 1908.....	1,131,272	1,224,799	3,255,507	5,611,578

The above heading "All Other Rubber," for the month of November, 1912, and for the first eleven months of two calendar years, include the following details relating to tires:

		For Automobile.	All Other.	TOTAL.
November, 1912.....	*Values*	$275,360	$58,569	$333,929
January-October		2,759,339	485,908	3,245,247
Total, 1912.....		$3,034,699	$544,477	$3,579,176
Total, 1911.....		2,257,727	526,653	2,784,380

OBITUARY RECORD

THE DEATH OF EDWARD R. RICE.

A GREAT shock came to the whole rubber trade—and especially to those more intimately associated with the footwear branch of the industry—when on the evening of Wednesday last, January 29, a telegram was received at the New York office of the United States Rubber Co., announcing the death of Edward R. Rice, at Portland, Oregon. Nothing so unexpected and startling has occurred in rubber circles for a long time.

Mr. Rice left New York on January 17, in the same excellent health that he had always enjoyed, except that for some days he had been troubled with a painful tooth; but this was extracted shortly before his departure. It was his intention to be gone about a month, in which time he expected to visit the various interests of the company on the Pacific Coast. On reaching Chicago he suffered so much pain that he kept to his room in the hotel for a day, and wrote the home office that he felt much more like going back than like going on, but that he thought it best to continue his journey.

He reached Portland, Oregon, on the 22nd, and still complained of considerable distress where the tooth had been extracted. He telegraphed on the morning of the 29th, that he expected to go into one of the Portland hospitals and undergo a slight operation in the hope of getting relief. The next telegram was received at nine o'clock the same evening from the hospital authorities, saying that while under the anaesthetic his respiration ceased, and that all the efforts of the staff to resuscitate him had proved unavailing.

EDWARD R. RICE.

While Mr. Rice was only in his 57th year, he was one of the veterans of the rubber trade, having been connected with it for forty years. He was born June 21, 1856, and while still a young boy he became connected with the wholesale house of L. P. Ross, Rochester, N. Y., soon developing into a successful salesman. In 1887 he became the selling agent at Buffalo of the Woonsocket Rubber Co., under the firm name of Edward R. Rice. When the Woonsocket Rubber Co. became part of the United States Rubber Co., in 1893, Mr. Rice's Buffalo agency became one of the branch stores of the big corporation. When in 1896 the Joseph Banigan Rubber Co. was formed, Mr. Rice was made its manager of sales, remaining in that position until that company also became a part of the United States Rubber Co., in 1901, when he was put in charge of the United States company's system of branch stores. He remained in this important position until July, 1906, when he was put in complete charge of the sales of the United States Rubber Co., being appointed manager of sales, to succeed the late E. H. Paine, who had been placed at the head of the company's export department, with headquarters in London. Mr. Rice's appointment to this position—carrying with it the general charge of the sales of over one-half of the rubber footwear manufactured in this country—was a signal recognition of his ability on the part of the directors of the United States Rubber Co. He remained in the position of manager of sales to the time of his death, and had also been on the board of directors since May, 1909.

Mr. Rice applied himself to the duties of his important office with characteristic energy and unflagging industry, familiarizing himself with all the details in all the various departments that go to constitute the selling system of this great corporation. But he did not permit the exactions of his position—great as they were—entirely to absorb his time and interest. He was an active member in various social and philanthropic organizations. He was a member of the Buffalo Club and the Saturn Club of Buffalo, being at one time its president. He was also president of the Elmwood School, a private educational institution of that city. He was a member of the Union League, the Lotos, and the Economic clubs of New York, and was a director for some years (receiving his appointment from the Governor) of the State Tubercular Hospital at Raybrook, New York.

He is survived by his widow, a daughter recently graduated from Vassar College, and a young son, now in a preparatory school at Buffalo. While the greater part of his time for many years had been passed in New York, he still retained his home in Buffalo, where the funeral services will be held.

He was a man of exceptional intelligence, with great power of application. He succeeded because he possessed, to a marked degree, the qualities that make for success. He was a man of unusually fine appearance, and was not only one of the most widely known personalities in the entire rubber trade, but he had a circle of most devoted friends.

WILLIAM HAGUE.

It is a great distinction in these days, and a record to be proud of, to have been actively associated with an important enterprise continuously for 52 years, and to have discharged one's duties faithfully and capably during that time. This distinction belonged to William Hague, who died in Tuckahoe, New York, January 15.

He was born in the North of Ireland in 1845. He came to this country at the age of 15, and secured employment in the factory of the Hodgman Rubber Co., at Tuckahoe. He remained a trusted and esteemed employee of that company up to a year ago, when, after 52 years of service, he was pensioned by the company. He lived during all that time at Tuckahoe, and took a useful part in the civic and religious life of the town, being at one time a trustee of the village, and actively identified for many years with the Asbury Centenary Methodist Church.

Another interesting incident connected with his career was the fact that he had a brother, Robert, also working for the Hodgman Rubber Co., but connected with their New York store, who, two years ago, rounded out 50 years of service in that position and was also pensioned by the company. It is refreshing in these days of industrial unrest to find instances where commercial relations between employer and employed have continued for half a century to the entire satisfaction of both.

News of the American Rubber Trade.

THE GUTTA PERCHA AND RUBBER, LTD.

THE January issue of this publication contained an announcement of the fact that the Gutta Percha and Rubber Manufacturing Co., of Toronto, Limited, was to be reorganized so as to include its three subsidiary companies with itself under one general name, viz.: The Gutta Percha and Rubber, Limited. The general facts of that reorganization were given in that announcement, but it did not include the names of the officers and directors, who are as follows:

Board of directors: S. T. Warren, chairman; A. W. Anglin, K.C., C. N. Candee, W. H. Galt, R. H. Greene, J. H. S. Kerr, C. B. Street, Trumbull Warren. Officers: Trumbull Warren, president and treasurer; C. N. Candee, vice-president and managing director; R. H. Greene, secretary and manager shoe department; J. H. S. Kerr, manager mechanical department; C. B. Street, general superintendent; W. H. Galt, general sales manager; L. L. McMurray, assistant treasurer; E. M. Lake, assistant secretary.

THE BOSTON BELTING CO.

A condensed summary of the last balance sheet of the Boston Belting Co., under date of September 30, 1912, shows the following:

LIABILITIES.

Capital stock	$1,000,000.00
Reserve fund	800,000.00
Profit and loss	201,666.52
Notes payable	439,000.00
Unsettled bills	7,500.00

ASSETS.

Real Estate (land and buildings)..	$328,711.85	
Machinery	275,757.32	
Tools, furniture and fixtures.....	99,111.15	
Cash	66,598.10	
Bonds receivable; notes receivable; investment acct; accts receivable.	808,688.10	
Merchandise	869,150.00	
Trade marks	100.00	
Sundries	50.00	
	$2,448,166.52	$2,448,166.52

THE HODGMAN RUBBER CO.

At the annual meeting of the stockholders of the Hodgman Rubber Co. held January 16, 1913, the following were elected directors for the year 1913: G. B. Hodgman, S. T. Hodgman, F. A. Hodgman, N. E. Stout and A. W. Warren. And at a subsequent meeting of the Board of Directors the following officers were re-elected: G. B. Hodgman, president; F. A. Hodgman, vice-president; S. T. Hodgman, treasurer; and A. W. Warren, secretary.

THE MASSACHUSETTS AUTOMOBILE CLUB OFFICERS.

At the annual meeting of the members of the Massachusetts Automobile Club, held at the club house in Boston January 9 last, the following officers were elected for the present year: President, William H. Ames; first vice-president, W. S. Shrigley; second vice-president, William A. Rolfe; treasurer, Frank W. Remick, and secretary, Arthur H. Brooks. Executive Committee for three years—Frank E. Peabody, Henry S. Rowe and George R. Alley. Election Committee for three years—Joseph C. Stedman, George Tyson and Harry K. White.

THREE UNITED STATES RUBBER CO. DIVIDENDS.

On January 2 the United States Rubber Co. declared regular quarterly dividends of 1 per cent. on the common and 2 per cent. on the first preferred and 1½ per cent. on the second preferred stock, all payable January 31 to stockholders of record January 13.

ANNUAL MEETING OF THE MOTOR AND ACCESSORY ASSOCIATION.

The tenth annual meeting of the Motor and Accessory Manufacturers was held January 15, at the Waldorf-Astoria, New York, with an excellent attendance of members. The reports of the retiring president, treasurer and of the chairmen of the various committees were read. The following members of the Board of Directors were elected to serve three years: C. E. Thompson, of the Electric Welding Products Co.; Alfred P. Sloan, Jr., of the Hyatt Roller Bearing Co.; F. Hallett Lovell, Jr., of the Lovell-McConnell Mfg. Co., and C. E. Whitney, of the Whitney Manufacturing Co.

At the meeting of the Board of Directors, held in the headquarters at 17 West Forty-second street, New York City, January 16, the following officers were elected to serve for the ensuing year: President, J. H. Foster, of the Hydraulic Pressed Steel Co.; first vice-president, F. Hallett Lovell, Jr., of the Lovell-McConnell Mfg. Co.; second vice-president, C. E. Whitney, of the Whitney Mfg. Co.; third vice-president, F. C. Billings, of the Billings & Spencer Co.; treasurer, L. M. Wainwright, of the Diamond Chain & Mfg. Co.; secretary and assistant treasurer, Alfred P. Sloan, Jr., of the Hyatt Roller Bearing Co. William M. Sweet continues as manager.

The fifth annual banquet of the association was held on the evening of the 15th. Beside the members there were the following guests: Samuel A. Miles, Merle L. Downs, A. G. Batchelder, H. A. Bonnell, James S. Marvin, Sidney S. Meyers and T. E. A. Barthel. The speakers at the dinner were Wilbur D. Nesbit, Hon. George McAneny, T. O. McGill, W. J. Burns and Col. George Pope.

THE REPUBLIC COMPANY'S ST. LOUIS BRANCH.

The Republic Rubber Co., of Youngstown, Ohio, has leased the building at 2018-20 Locust street, St. Louis, to be used as a branch for the Republic tires. The company will occupy the first two floors and basement, handling all sizes and styles of Republic tires. George M. Hoffman will be manager of the branch.

THE FIRESTONE'S NEW YORK BUILDING.

The Firestone Tire and Rubber Co. has leased for a term of 21 years a vacant plot 150 x 100 feet, on the corner of Sixty-third street and West End avenue, New York, on which it will build a modern four-story fireproof service building, to be used exclusively for the motor truck end of its tire business. It will maintain a night service as well as a day service, which will undoubtedly appeal to a good many users of motor trucks. The aggregate rent for the term of the lease is said to be about $250,000.

THE INTER-CONTINENTAL RUBBER CO.

Very few American enterprises located in Mexico have been immune from the unhappy results of the civil strife, that has been going on in that republic during the last few years. The Inter-Continental Rubber Co. has suffered together with other American undertakings, but still its condition might be worse, as will be seen from the following remarks recently made by the president of the company, Mr. W. M. Porter: "We are now operating our Torreon plant," he says, "at from 75 per cent. to 80 per cent. of capacity, and have plenty of business on hand to continue operating at this rate for a long time. There is no special condition existing now, so far as the company's operations go, that would be regarded as a really depressing feature."

DUTCH GUIANA RUBBER CULTURE CO.

The Dutch Guiana Culture Co., controlling substantial rubber and coffee properties in Dutch Guiana, attracted a great deal of favorable interest at the recently held Rubber Show, and the accompanying sketch shows the company's booth at the exhibition. The president and treasurer of the company, Mr. L. C. Lawton, a prominent Chicago rubber man, is giving the company his personal attention, which is a sufficient guarantee of successful management. The offices of the company are at the Title & Trust building, 63 Washington street, Chicago.

THE DUTCH GUIANA CO. AT THE RUBBER SHOW.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks, ending January 25.

COMMON STOCK, $25,000,000.

[The treasury of a subsidiary company holds $1,334,000.]
Last Dividend, October 31, 1912—1%.

Week	January 4	Sales	8,500	Shares	High	65¼	Low 62
Week	January 11	Sales	33,800	Shares	High	68⅛	Low 62¾
Week	January 18	Sales	22,300	Shares	High	66½	Low 63
Week	January 25	Sales	19,400	Shares	High	67½	Low 64½

For the year—High, 68¾, January 10; Low, 62, January 3.
Last year—High, 67⅞; Low, 45¼.

FIRST PREFERRED STOCK, $39,824,400.

Last Dividend, October 31, 1912—2%.

Week	January 4	Sales	925	Shares	High	107⅜	Low 107
Week	January 11	Sales	1,900	Shares	High	109	Low 107½
Week	January 18	Sales	1,312	Shares	High	106	Low 105½
Week	January 25	Sales	2,285	Shares	High	107½	Low 105⅝

For the year—High, 109, January 8; Low, 105½, January 15.
Last year—High, 116; Low, 105¾.

SECOND PREFERRED STOCK, $9,965,000.

Last Dividend, October 31, 1912—1½%.

Week	January 4	Sales	900	Shares	High	79⅜	Low 79⅛
Week	January 11	Sales	2,300	Shares	High	81½	Low 79½
Week	January 18	Sales	200	Shares	High	79¼	Low 79
Week	January 25	Sales	200	Shares	High	79	Low 79

For the year—High, 81½, January 9; Low, 79, January 16.
Last year—High, 85½; Low, 75.

SIX PER CENT. TRUST GOLD BONDS, $18,000,000.

Outstanding of the 1908 issue of $20,000,000.

Week	January 4	Sales	53	Bonds	High	103	Low 102⅞
Week	January 11	Sales	83	Bonds	High	103	Low 102¾
Week	January 18	Sales	68	Bonds	High	103	Low 102¾
Week	January 25	Sales	34	Bonds	High	103⅛	Low 102⅞

For the year—High, 103¼, January 25; Low, 102¾, January 18.
Last year—High, 105; Low, 102½.

U. S. RUBBER RECLAIMING CO. IN 42d ST. BUILDING.

The United States Rubber Reclaiming Works has recently reorganized; changing the company name to that of the United States Rubber Reclaiming Co., Inc. The stock of the company has been increased to $2,400,000, divided into $1,200,000 preferred and $1,200,000 common. There has been no change in the administration or personnel of the company. About the 1st of March the administrative department will move its offices from the present location at 277 Broadway to the Forty-second street building, where it will occupy commodious and handsomely appointed offices.

NEW QUARTERS OF A CRUDE RUBBER HOUSE.

Wallace L. Gough, the well-known crude rubber operator, has taken a suite of offices on the fourth floor of the Maritime building, No. 8 and 10 Bridge street, and is certainly very happily located. Mr. Gough has extensively developed connections along the lines of both selling and buying. On the first of the year, Edward R. Williams, a young rubber man of experience—both in this vicinity and in Western rubber sections—became identified with the Gough concern, and brings to it what will very probably prove a profitable connection.

REMOVAL OF A TIRE FABRIC CONCERN.

The Connecticut Mills, Danielson, Connecticut, has recently added a 250-foot building to its extensive plant, augmenting production 50 per cent. and incidentally increasing its capital to $550,000. R. J. Caldwell, the selling agent of the company, has changed his New York address to 488 Broadway. He recently distributed a very large and effective water-color reproduction, showing the water-front of lower Manhattan. This souvenir is something that is not only sure of a substantial place in the appreciation of recipients, but of a conspicuous one on the walls of their offices as well.

INCREASED FACILITIES OF A RUBBER TOOL CONCERN.

The Hoggson & Pettis Manufacturing Co., makers of a complete and standard line of rubber-cutting tools and devices, and specializing in "The Sweetland Lathe Chuck," are now so situated as to handle orders with increased efficiency. This company has always been recognized as being standard in its line.

TRADE NEWS NOTES.

According to the newspapers of Trenton, there is quite an agitation in that city over a possible industrial exposition to be held under the direction of the Chamber of Commerce. If such an exposition is held, it will give a number of rubber manufacturers quite an opportunity to display their products.

The Duck Brand Co., of Chicago, are now located in their new store at 22-26 South Market street, that city.

It is reported that the East Palestine Rubber Co., are now turning out tires.

The McGraw Tire & Rubber Co., East Palestine, Ohio, are adding new buildings to their already extensive factory, and are now in a position to turn out their product in increased volume. The New York branch of that company, which is at 1706 Broadway, is now under the management of Russell F. Hobron, who was for many years connected with the Voorhees Rubber Co. Mr. Hobron enters upon his new position finely equipped to give good service to the metropolitan trade.

The annual banquet of the Goodyear Rubber Co., of Milwaukee, for salesmen and heads of departments, was held in the red room of the Hotel Pfister in that city, January 18. Mr. Olin A. Richards, of the United States Rubber Co., New York, was a guest.

R. L. Chipman, identified for many years with the Boston house of George A. Alden & Co., is now identified with the New York Commercial Co., 290 Broadway.

NEW INCORPORATIONS.

Alcorn Rubber Co., Inc., November 15, 1912; under the laws of California; authorized capital, $20,000. Incorporators: James A. Alcorn, C. F. Wickland, and Gay Baker, all of Los Angeles, California. Location of principal office, Los Angeles, California. To deal in rubber, imitation rubber goods, rubber products, imitation rubber products, etc.

Bedford Auto Renting and Repair Co., Inc., December 20, 1912; under the laws of New York; authorized capital, $10,000. Incorporators: George J. Murphy, 429 Willoughby avenue, Brooklyn, New York; Joseph H. Bernstein, 167 St. Ann's avenue, New York, and August E. Fuchs, 80 Heyward street, Brooklyn, New York. Location of principal office, Brooklyn, New York.

Best Tire and Rubber Co., December 5, 1912; under the laws of New Jersey; authorized capital, $125,000. Incorporators: S. L. Henry, 237 Jelliff avenue; Martin Walker and Edward Spillane, 54 Warren street—all of Newark, New Jersey. To manufacture and sell automobiles, and all kinds of vehicle tires, etc. Location of principal office, 237 Jelliff avenue, Newark, New Jersey.

Brooklyn Auto Livery Co., Inc., December 20, 1912; under the laws of New York; authorized capital, $20,000. Incorporators: Lewis W. Boynton, Ulster Park, New York, Dodge B. Hicks, 188 Lincoln avenue, and Charles M. Fuller, 527 Quincy street—both of Brooklyn, New York. Location of principal office, Brooklyn, New York.

The C. & K. Raincoat Co., Inc., December 6, 1912; under the laws of New York; authorized capital, $1,500. Incorporators: Barnett Cohen, 721 Stone avenue; Wolf Karsh, 353 Chester street, and Nathan Rosenbaum, 661 Rockaway avenue —all of Brooklyn, New York. Location of principal office Brooklyn, New York.

Climax Garter Co., Inc., December 23, 1912; under the laws of New York; authorized capital, $5,000. Incorporators: Aaron Gotlieb, 195 Penn street, Brooklyn, New York; Moses J. and Joseph Berger—both of Bedford avenue, Brooklyn, New York. Location of principal office, New York. To deal in garters, elastic goods, etc.

Durable Tread and Automobile Sales Co., Inc., December 13, 1912; under the laws of New York; authorized capital, $10,000. Incorporators: Rose H. Jacobs, 605 West 112th street; Samuel M. Winkler, 524 West 34th street, and Henry A. Deimel, 540 West 143rd street—all of New York. Location of principal office, New York. To deal in tires, tire treads, automobiles and accessories.

Favary Tire Co., December 21, 1912; under the laws of New York; authorized capital, $300,000. Incorporators: Ethelbert Favary, 111 Broadway, New York; William P. Richardson, Goshen, New York; and M. W. Brashears, 327 Central Park West, New York. Location of principal office, New York.

Flex-O-Fill Core Co., Inc., November 26, 1912; under the laws of New York; authorized capital, $10,000. Incorporators: Guy Osborn, 1493 Broadway, New York; L. McCready, 50 Church street, New York, and F. H. Crooks, Newark, New Jersey. To manufacture compounds for filling vehicle tires.

H. Goldman & Co., Inc., December 26, 1912; under the laws of New York; authorized capital, $25,000. Incorporators: Harry and Sarah Goldman—both of 598 West 152nd street, New York, and Blanche Denosky, 610 West 150th street, New York. Location of principal office, New York. To manufacture and deal in ladies raincoats, etc.

Illinois Tire Filler Co., December 14, 1912; under the laws of Illinois; authorized capital, $10,000. Incorporators: Albert Jacobs, Anton Pecival and Charles B. Stafford. Location of principal office, Room 1016, 29 South La Salle street, Chicago, Illinois. To manufacture and sell vehicles, wheels, tires and rims.

Improved Rubber Products Co., Inc., January 20, 1913; under the laws of New York; authorized capital, $100,000. Incorporators: Carrie M. Berger, Arthur C. Mandel and Samuel A. Berger—all of 772 Humboldt street, Brooklyn. Location of principal office, Brooklyn, New York.

The Miller Tire Sales Co., Inc., January 7, 1913; under the laws of New York; authorized capital, $5,000. Incorporators: Harry C. Miller, 608 Warburton avenue; Harrison C. Mills, 193 Woodworth avenue—both of Yonkers, New York, and Warren A. Schenck, 473 West 158th street, New York. Location of principal office, New York.

National Comb Works, Inc., January 7, 1913; under the laws of New York; authorized capital, $5,000. Incorporators: William L. Wray, Rockville Center, Long Island; Morris Friedman and Max Rothman—both of 96 East Fourth street, New York. Location of principal office, Brooklyn, New York. To manufacture combs and other articles of celluloid, rubber, etc.

New York Macandaruba Tire Filler Co., December 20, 1912; under the laws of New York; authorized capital, $25,000. Incorporators: Moses Haas, Nathaniel Levy and George A. Weingetz—all of 366 Broadway, New York. Location of principal office, New York. To deal in a composition used for filling tires.

Para Products Co., Inc., January 10, 1913; under the laws of New York; authorized capital, $5,000. Incorporators: Jacob Schreiber, 149 Broadway; Alfred Epstein, 1777 Broadway, and Frank Brown—all of New York.

Peninsular Tire and Rubber Co., November 25, 1912; under the laws of Michigan; authorized capital, $1,000. Incorporators: William O. Hugart, Jr., George T. Kendal and Herbert B. Gillette—all of Grand Rapids, Michigan. Location of principal office, Grand Rapids, Kent County, Michigan. To sell and manufacture and deal in rubber goods, automobiles, automobile tires, etc.

Peruvian-Chamayro Rubber Co., December 19, 1912; under the laws of Delaware; authorized capital, $700,000. Incorporators: Tonko L. Milic, 60 Wall street; George R. Allison, 64 Riverside Drive—both of New York, and Andrew E. Sanborn, Wilmington, Delaware.

Pneumatic Hub Wheel Co., Inc., January 15, 1913; under the laws of New York; authorized capital, $10,000. Incorporators: Kasiel Blau, 120 Delancey street, New York, George Derfman, 220 Hopkins street, Walter Primoff, 993 St. Marks avenue—both of Brooklyn, New York. Location of principal office, New York. To manufacture pneumatic rubber cushion hub wheels, etc.

Pneumatic Stamp Co., Inc., January 7, 1913; under the laws of New York; authorized capital, $15,000. Incorporators: Arthur H. and Mary Saunders—both of 115 Leroy street, and J. Addison Brown, 4 Ayres street—all of Binghamton, New York. Location of principal office, Binghamton, New York. To manufacture rubber stamps, type, etc.

Rochester Macandaruba Tire Filler Co., Inc., December 5, 1912; under the laws of New York; authorized capital, $10,000. Incorporators: Charles S. Morris, Nunda, New York, and John S. Crosier and Albert C. Olp—both of Rochester, New York. To deal in tire fillers, tires, etc.

Sidney Rubber Roofing Co., Ltd., October 23, 1912; under the laws of British Columbia; authorized capital, $150,000. Incorporators: Victor A. Elliot, Charles M. Lamb and Harold Despard Twiggall, of Victoria, British Columbia. Location of principal office, 607 Sayward Building, Victoria, British Columbia. To manufacture roofing felt and roofing paper, etc.

Standard Motor Co., December 31, 1912; under the laws of Delaware; authorized capital, $31,000,000. Incorporators: Donald C. Muhleman, New York, William J. Maloney and Herbert E. Latter—both of Wilmington, Delaware. To manufacture and deal in automobile tires, etc.

Star Raincoat Co., Inc., December 4, 1912; under the laws of New York; authorized capital, $10,000. Incorporators: Abram Harris, 527 West 110th street, Bernard Friedman, 1039 East 165th street, and Jacob Friedman, 906 Simpson street, Bronx, New York. Location of principal office, New York. To manufacture rubberized clothing, etc.

The Storm Shield Manufacturing Co., December 3, 1912; under the laws of Illinois; authorized capital, $100,000. Incorporators: L. E. and Norman A. Street and R. E. Wighton. To manufacture and deal in automobile accessories and parts.

Syncru Manufacturing Co., Inc., January 7, 1913; under the laws of New York; authorized capital, $100,000. Incorporators: Charles D. Gwyer, 303 Putnam avenue, Brooklyn, New York, Maxwell Greenberger, 2 Rector street, and Samuel R. Upham, 8 Gold street—both of New York. Location of principal office, New York. To manufacture rubber goods, etc.

United Rubberine Supply Co., Inc., December 6, 1912; under the laws of New York; authorized capital, $200,000. Incorporators: Herman Mayer, 331 West 83rd street, New York; Thomas H. Royce, Borough Park, Brooklyn, New York, and Charles L. Bookheim, Riverview Manor, Hastings-on-Hudson, New York. Location of principal office, New York. To deal in tire fillings, rubberine, etc.

United States Rubber Reclaiming Co., Inc., December 30, 1912; under the laws of New York; authorized capital, $2,400,000. Incorporators: Theodore W. Bassett and Rudolph A. Loewenthal —both of 277 Broadway, New York, and Cornelia Beebe, Ellenville, New York. Location of principal office, Buffalo, New York. To manufacture and deal in rubber goods, tires, etc.

Wholesale Auto Tire Co., Inc., December 26, 1912; under the laws of New York. Authorized capital, $1,000. Incorporators: William P. Cole, 83 Chambers street, David Morris, 26 Oliver street, and Abraham Levy, 277 Broadway. All of New York. Location of principal office, New York.

Winston-Hueter Co., Inc., December 5, 1912; under the laws of New York; authorized capital, $5,000. Incorporators: Charles C. Winston, John S. Sumner—both of Freeport, New York, and Gustav A. Hueter, 1252 58th street, Brooklyn, New York. Location of principal office, New York. To deal in leather and rubber belting, mill supplies, etc.

A NEW RUBBER COMPANY IN OHIO.

The I. J. Cooper Rubber Co., recently incorporated, is operating stores in various Ohio cities, including Cincinnati, Dayton and Columbus. These stores distribute the "Racine" automobile tires and the Cooper Rubber Company's own brand of solid carriage and bicycle tires.

RUBBER CITY MACHINE CO.

The Rubber City Machine Co., Akron, Ohio, which commenced business some four years ago, manufacturing a general line of machine work, is now specializing in rubber-making machinery, and is putting a mixing apron for mills, a ringless and boltless core, and a hydraulic tire-vulcanizer-press on the market. The special feature in the construction of this press is that it obviates the necessity of dropping the ram below the floor line. The cover is operated by hydraulic power. P. E. Welton, a well-known engineer, is putting in a line of machinery for The Rubber City company, which is said to have a thoroughly up-to-date plant.

PERSONAL MENTION.

Mr. George G. Bryant, secretary and general manager of the Chicago Rubber Clothing Co., of Racine, Wisconsin, was the guest of Mr. F. H. Peaty, of the Raw Products Co., at the annual dinner of the Rubber Club of America, held January 23, at the Waldorf-Astoria Hotel.

RETIRES AFTER 54 YEARS OF RUBBER-MAKING.

The only surviving incorporator of the Tyer Rubber Co., which was incorporated in 1876, is Mr. John H. Flint. He has acted as treasurer of that company for 30 years, and all-told has been in the rubber business for 54 years. He has just retired from active service in the company to enjoy a little leisure, which assuredly has been well earned. He will remain, however, as a director in the company. His position as treasurer has been taken by Mr. Frederick H. Jones.

W. W. WUCHTER.

The subject of the accompanying sketch is William W. Wuchter, who has recently become connected with the Gibney Tire & Rubber Co., of Philadelphia. Mr. Wuchter received his initial training in the rubber business with the B. F. Goodrich Co., with which concern he was identified for nine years. Subsequently he was prominently connected with the Firestone Tire & Rubber Co., with which he remained seven years. On September 1, 1909, Mr. Wuchter took the management of the Swine-

W. W. WUCHTER.

hart Tire & Rubber Co., of Akron, Ohio, and in this capacity developed the business from a relatively insignificant volume to a very important output.

Mr. Wuchter is recognized as a truck-tire expert and a generally competent rubber man, and one who has a host of friends in the trade. He is a man of genial personality and sterling integrity and will, no doubt, achieve substantial success in his present connection.

TWO POPULAR FOREMEN.

It is, of course, an economic fact that a foreman who is popular with his subordinates can run his department much more smoothly and efficiently than a foreman who is disliked or feared by his subordinates. The Stoughton Rubber Co., Stoughton, Massachusetts, evidently has some popular foremen, judging from the following paragraph cut from a local paper during the holidays: "Max J. Zinner, a foreman at the Stoughton Rubber Co., was presented a sideboard and a bouquet by those working for him, Wednesday afternoon. At about the same time Charles A. Kartstein, the foreman in the coat room, was responding to the presentation speech when a chest of silver was given to him by the employees."

TRADE NEWS NOTES.

The Loewenthal Co. has removed its warehouse and office in New York from 481 Washington street to 136 Watts street.

The Empire Rubber and Tire Co., Trenton, New Jersey, was incorporated with a capitalization of $1,000,000 on January 2, 1913, and took over the assets and liabilities of the Empire Rubber Mfg. Co. and the Empire Tire Co., both of the same place.

The Mayflower Rubber Works, of South Braintree, Massachusetts, is a new company of which William Killion is president, and S. R. Nichols is treasurer. They make a general line of molded specialties, which are marketed through the F. W. Wicher Co., Albany Building, Boston.

A branch has been opened in Atlanta, Georgia, by the Mansfield Tire and Rubber Co., Mansfield, Ohio, with Robert E. Warwich in charge as manager.

A new concern has recently been formed in New York—to begin business the present month—called the Wholesale Auto Tire Co., which will deal in unguaranteed tires. W. P. Cole is the manager, and Wilfred E. Willis, the assistant manager.

The object of this company is to deal in surplus and factory seconds, and also in first-grade tires where they can be bought at a low figure. The company will do only a wholesale business and will sell no goods at retail.

The Firestone Tire & Rubber Co., on January 15, paid a quarterly dividend of 2½ per cent. on its common stock and 1¾ per cent. on its preferred stock.

The Standard Raincoat Co., whose factory at Milford, Massachusetts, was recently destroyed by fire, has decided to move to Everett, in the same State, and will occupy a factory formerly used in the making of shoes.

The Victor Rubber Co., of Springfield, Ohio, has increased its capital from $69,000 to $100,000.

At a meeting of the board of directors of the Chicago Rubber Clothing Co., of Racine, Wisconsin, held January 15, a dividend of 12 per cent. on the outstanding stock was declared.

THE HIBERNATION OF TIRES.

The Service Bureau of the United States Tire Co. gives some seasonable advice an the proper way to winter tires.

"In laying up a car the tires should be removed from the rims and washed thoroughly with soap and water. They should then be carefully wrapped in strips of paper or cloth and stored in a dark place which is kept as nearly as possible at a temperature of 50 degrees.

"If the tires are to remain on the wheels for a considerable length of time while the car is out of service, the wheels should be jacked up and only about five pounds of air left in each tire. This keeps the tubes in shape and also preserves their softness and pliability. When the wheels are not jacked up and the car is allowed to stand for any length of time, the tires should be kept well inflated and the car moved occasionally, so that the tires do not flatten from standing too long on one spot."

THE ELWELL RUBBER CO. MOVES.

The Elwell Rubber Co. has recently removed from Trenton, New Jersey, to Stoughton, Massachusetts, having purchased the plant formerly occupied in that town by the Plymouth Rubber Co. It manufactures rubber heels and employs about 150 hands.

TO FILL TIRES WITH "DIXITE."

A new company has just been incorporated in Louisville, Kentucky, called the Dixie Rubber Co., for the purpose of manufacturing "Dixite," a substance for filling rubber tires. The capital stock of the company is $5,000, issued in shares of $10 each.

THE UNITED STATES RUBBER CO. BUYS THE RUBBER REGENERATING CO.

THE United States Rubber Co. recently made application to the New York Stock Exchange to list $6,000,000 additional common stock to be used for the purchase of the Rubber Regenerating Co., of Mishawaka, Indiana—a corporation with $1,500,000 common stock and a certain amount of preferred stock outstanding.

As there was considerable criticism in the columns of the daily press over the company's report for the six months ending September 30, 1912, which accompanied this application, President Samuel P. Colt, of the United States Rubber Co., has made the following statement:

"Judging from newspaper articles to which my attention has been called, several matters in the recent application of the United States Rubber Co. to list additional common and first preferred stock were misunderstood. As stated in the application, which has been duly granted by the authorities of the Stock Exchange, $6,000,000 additional common stock is to be given in exchange for the entire common stock of the Rubber Regenerating Co.

"It is only fair that our stockholders should know at this early date that the entire earnings of the United States Rubber Co. for this fiscal year promise to be largely in excess of dividend requirements. The earnings of the Rubber Regenerating Co. are now double the dividends on the amount of the United States Rubber Co. common stock issued in exchange for the corresponding issue of that company. Furthermore, the United States Rubber Co. will undoubtedly, aside from earnings, be indirectly benefited to a large extent by the acquisition of the Rubber Regenerating Co.

"There seems to have been some misapprehension as to the amount of surplus shown in the statement of the United States Rubber Co. to the Stock Exchange for the six months ended September 30, in comparison with the surplus shown as of March 31 last, in the annual report. Apparently it has been overlooked that in the meantime the company has declared and paid a stock dividend of $5,000,000 to its common shareholders. Obviously the surplus was reduced by that amount.

"In making the application to the Stock Exchange to list the additional common and first preferred stock, as complete financial statements as possible for the various companies involved were made. The application was filed some time before the close of the fiscal year of the United States Rubber Co., and its subsidiaries; consequently it was impossible to render complete statements, as could have been done if the application had been filed some little time after the close of the fiscal period.

"To my mind the important point in this whole matter is that which I have already referred to, namely, that the earnings of the United States Rubber Co. promise to be largely in excess of all dividend requirements."

OFFICERS OF THE MANSFIELD TIRE & RUBBER CO.

At the annual meeting of the stockholders of the Mansfield Tire & Rubber Co., of Piqua, Ohio, the following officers and directors were elected: C. R. Grant, president; G. W. Henne, vice-president and general manager; Jesse E. LaDow, secretary; W. F. Henne, treasurer. These with Dimon Herring, William Isaly, Charles Hoffman and John Schauer, comprise the board of directors.

A RUBBER PLANT IN OREGON.

It is stated that some citizens of Portland, Oregon, including Dr. E. G. Watts and Ray Pritchard, are engaged in promoting an enterprise for the manufacture of druggists' sundries in the town of Stanfield—not far from Portland. The town has contributed a site containing two acres for the factory, which is 50 x 100 feet in size. It is hoped that manufacturing operations will begin (on a small scale) in the immediate future.

OVER 11,000 FEET OF AIR-BRAKE HOSE A DAY.

The Air Brake Department of The Republic Rubber Co. made a record January 7, in turning out short-length hose, which, the company believes, will surpass that of any other establishment in the country. On that day 11,500 feet of air-brake hose were produced by the hundred men employed in this section of the works. C. B. Frase is manager of the department, and not a little credit for the feat is due to his executive skill.

THE DAVOL COMPANY'S NEW PLANS.

Just before the recent holidays, the sales force of the Davol Rubber Company, Providence, Rhode Island, gathered together after their usual custom, for the semi-annual meeting and conference. At the conclusion of the conference, which lasted two days, the president of the company, Mr. Charles J. Davol, gave the members of the force a banquet—and an exceptionally generous and attractive banquet it was, if one may judge by the menu. There were 14 in attendance on that occasion—the sales manager, superintendent, secretary and acting treasurer attending, together with the salesmen. The feature of the evening, however, was not the menu, abundant and choice as that was, but the speech of President Davol, in which he thanked his assistants for having made 1912 the largest year in the company's history, and in which he went on to describe the company's plans for the coming year—not forgetting the large new factory now under course of erection on ground adjoining the present plant. The new mill will be four stories in height and will cover an area of 300 feet by 60 feet, thus adding approximately 80,000 square feet to the present large plant. With the new addition the Davol Rubber Co. will have the largest factory in the world devoted exclusively to the manufacture of druggists' sundries.

A new selling feature, from which much is expected, is being added to the output of the company in the shape of a patented household dish-washing device that will be marketed under the style of the "Yankee Girl Dish Washer." This device, made of rubber and metal, represents the most practical advance in the washing of household dishes since dishes have been used. It enables either mistress or maid to do all the dish washing in a practical and sanitary manner, without so much as wetting the hands. It divorces the dish pan from the kitchen and makes the work of washing dishes a pleasure, instead of a distasteful task. The Davol people expect to make this a greater success than even their famous "Anti-Colic Nipple."

HIGHEST FOR UNITED STATES RUBBER COMMON.

On January 10, last, the common stock of the United States Rubber Co. sold at 68⅜, which was the highest point at which this stock has ever sold.

THE WALPOLE'S FINE YEAR.

The Walpole Tire & Rubber Co., Walpole, Mass., had a very successful year in 1912. The gross sales exceeded $2,500,000—over 60 per cent. increase over the previous year. The net earnings for the year are estimated at $335,000.

LOUISVILLE TO MAKE TIRES.

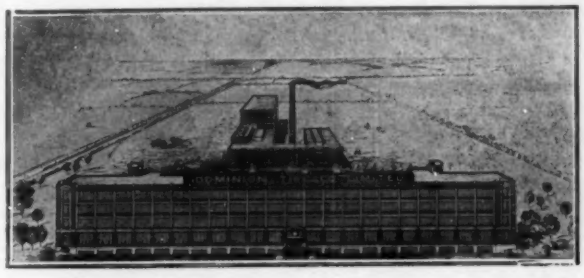
The manufacture of tires having in the past been practically confined to the territory north of the Ohio river, interest attaches to the incorporation at Louisville of the Speedway Tire Co., with a paid-up capital of $250,000. Sixty-five per cent. of the stock is held in the city named.

At first the new company will be located in a leased factory, with option of purchase. Later on, when its wants are known, a modern eight-story structure of concrete, steel and glass will be erected. It is expected to make about 100 motor vehicle tires a day, in three standard types. The chief product will consist of pneumatic and solid automobile tires, but mechanical rubber goods and druggists' supplies will also be manufactured. About 300 men will be employed, the plant being in charge of G. W. Greene, a Massachusetts tire expert. Harry L. Lewman is president; the other officials being likewise prominent local men.

THE NEW DOMINION TIRES.

The Dominion Tire Co., Ltd., recently started with a capital of $1,000,000, bids fair to make itself very well known in a short space of time. It is building an exceptionally fine factory in Berlin, Ontario. Berlin, by the way, has a marvelous record for growth and enterprise. Less than sixty years ago it had only 400 inhabitants; but they came from good stock; they were mostly Pennsylvania German farmers. Now the town has a population of 25,000 and is celebrated for its high-class factories. The workmen, too, are of a superior class; over 70 per cent. of the people of Berlin owning their own houses.

This new tire company has secured 40 acres of land, so that it will have room to grow. The main building, which is rapidly



DOMINION TIRE CO., LIMITED.

nearing completion, is 432 x 90 feet, five stories and basement, and is flooded with light from every side. It will be equipped with the very best machinery to be obtained anywhere on the continent, and both the Canadian Pacific and Grand Trunk Railways have extended their sidings to the factory, insuring prompt delivery of materials and equally prompt shipment of goods.

The company does not intend to get out a cheap tire, as it believes that cheap tires bring only disaster to manufacturer, dealer and consumer. Its purpose is to make the very best tire that the finest equipment and the best available labor can produce. The Canadian Consolidated Rubber Co., Ltd., will be the sole agent and distributor of the "Dominion" tires.

FAVARY TIRE CO. ACQUIRES PLANT.

Since its incorporation three years ago, the Favary Tire Co., of New York City, has been perfecting its special cushion tire. It recently acquired a plant at Middletown, New York, where it was expecting to produce tires during January. The company is composed of Ethelbert Favary, the inventor; H. C. Cryder, and M. W. Brashears.

The special feature of this tire is a concentric series of endless bands of specially woven fabric and rubber, supported by closely spaced aluminum blocks.

A NEW MICHELIN FACTORY.

A direct factory branch is being established in Wisconsin by the Michelin Tire Co., of New Jersey. In its application, the company states its capital as $3,000,000, and the Wisconsin interest as $25,000. The new branch, it is understood, will be located at Milwaukee.

PROHIBITION OF BULB HORNS.

A police ordinance in Los Angeles, California, prohibits the use of bulb horns as signal devices on automobiles. The new ordinance requires a signal producing an abrupt warning note, to be only used in the event of impending danger.

COMPLETION OF MARATHON RUBBER FACTORY.

Satisfactory progress is reported in the mechanical installation of the factory, lately erected by the Marathon Tire and Rubber Co., of Cuyahoga Falls, Ohio. It is anticipated that the company will be working at its full capacity by early in February.

CALENDARS RECEIVED.

A BEAUTIFUL HAND-COLORED PANEL.

The Adamson Machine Co., manufacturers of rubber-working machinery, of Akron, Ohio, have favored their customers with a particularly artistic calendar for 1913. The full size is 14 x 18 inches. The effective feature consists of a panel 6 x 12 inches, showing a restful landscape at sun down, hand-colored in the most delicate fashion. "That's good enough to frame" is the general expression on seeing this handsome picture. The panel is mounted on a cream-colored card and that in turn is mounted on a delicate shade of green. The calendar pad proper is printed in a very soft green and tied to the mounts with white ribbon. This calendar is rather for the private office or the library at home than for the factory walls.

"THE RUDE BRIDGE THAT ARCHED THE FLOOD."

The J. H. Stedman Co., scrap rubber merchants, Boston, Massachusetts, turned with great propriety to New England history for a calendar subject for the new year. Their calendar requires a sizeable space on the wall, as it is printed on heavy white cardboard 15 x 18 inches. One-half of this space is taken up by a photogravure of the old North bridge at Concord, Massachusetts, which Emerson referred to as "the rude bridge that arched the flood," where "the embattled farmers stood." The calendar pad is 5 x 9 inches, which gives plenty of space for legible figures. This makes a convenient and artistic office calendar.

TWO FINE HAND-TINTED SKETCHES.

The American Rubber Manufacturing Co., San Francisco, California, manufacturers of rubber belting, hose, matting and other mechanical rubber goods, have made a handsome contribution to the 1913 calendar output. It consists of a panel picture—the three-quarter length figure of a winsome young woman holding an American beauty rose. The title is "An American Beauty." Whether the title refers to the rose or to the young person holding it, would depend upon whether the decision rested with a woman or with a man. The average man would ignore the rose and say the title fitted the girl. This panel is mounted on a primrose-colored card, which in turn is mounted on a card of dark brown, the whole, which is 7½ inches wide by 16 inches long, being finished with brown silk ribbons and a ring for hanging.

Mr. Elmer E. Bast, manager of the Hamilton Rubber Manufacturing Co., and the American Belting Co., of Chicago, displays much taste in the handsome panel with which he has favored his friends. This is also a delicate water-tinted creation, showing a young woman—or at least the head and shoulders of one—enjoying the fragrance of a bunch of yellow roses, the title of the panel being "When Roses Bloom." This panel has a double mount, first on a cream and then on a delicate green background, the two mounts being fastened together with a heavy green silk ribbon.

CALENDARS BY THE MILLIONS.

Speaking of calendars, it is an interesting fact that an American company, the American Lithograph Co., of New York, prints more calendars than any other concern in the world, and has enjoyed this distinction for many years. The American Lithograph Co. has printed as high as 20,000,000 calendars in a year, which is almost enough to put one of its calendars in every home in the United States. Some of its single orders—generally from life insurance companies—amount to editions of 5,000,000. It has printed more calendars—and it is safe to say handsomer calendars—for rubber companies than any other concern. For a number of years the United States Rubber Co. distributed very large editions of handsome calendars intended for the general consumer. The B. F. Goodrich Co. for a number of years issued a series of beautiful lithographed heads. All this work was done by the American Lithograph Co.

Its principal customers—outside of the big rubber companies—have been packing houses, publishing concerns, the large soap manufacturers, life insurance companies and the fire arms companies. Of course these large companies that give orders for calendars running from 100,000 to 4,000,000 or 5,000,000 always have special designs made for them by the leading American artists—the original design often costing several thousand dollars.

SOME SMALLER CALENDARS.

The Electric Hose and Rubber Co., Wilmington, Delaware, prefers the useful to the ornamental in its calendar offering, and has supplied its customers with a desk calendar 5⅓ x 9 inches in size, which has a memorandum page for every week. At the bottom of each page there is a striking cut of a section of the company's hose; and printed in a light skeleton effect on each memorandum page one will find a variety of brief arguments in favor of using this brand of hose.

The Derby Rubber Co., Derby, Connecticut, manufacturers of reclaimed rubber, sent out a little panel calendar, 3¼ x 6½ inches, with a small picture in colors, of the American aborigine, the Red Man, with his bow and arrow, in pursuit of game.

The West India Committee Circular, published in London, has distributed a modest calendar 5 x 8½ inches in size, giving the calendar for the entire year—naturally in rather small figures—and above this showing a photographic panel of a familiar West Indian scene, to wit: a group of husky negresses going to market with a basket of yams and other delicacies on their heads, accompanied by a meek and lowly burro, whose circumference is considerably increased by bundles of sugar cane.

The Hazard Manufacturing Co., Wilkes-Barre, Pa., with offices in New York, Chicago and Pittsburgh, has distributed a large wall calendar about 30 x 18 inches in size, having a conspicuous half-tone picture printed in black and buff, showing a tug coming down the North River pulling the gigantic *Olympic* in its wake, a coil of insulated cable serving as an appropriate frame. The pad itself has large and conspicuous figures which will make it serviceable in office or storehouse.

The Revere Rubber Co.'s calendar is ornamented appropriately with a picture of a high-stepper trotting through a park. The calendar card, which is about 15 x 20 inches in size, also displays half-tone reproductions of 18 of the company's popular horseshoe pads. The card also bears some information relative to the use of pads.

The La Favorite Rubber Manufacturing Co., has made an attractive calendar by printing in a sepia tint, a large half-tone reproduction of a photograph of the exhibit the company made at the International Rubber Exhibition held in the Grand Central Palace last Fall. The half-tone is mounted on a brown board and has a brown calendar pad at the bottom of the mount.

White & Reid, "Rubberizers," Hoboken, New Jersey, have favored their customers with a particularly serviceable office calendar, consisting of a heavy cardboard back 8 x 12 inches, on which is mounted a calendar pad about 6½ inches square, having a page for each day of the year. This makes naturally a heavy pad, which is secured to the back by a couple of steel screws with caps that can easily be removed to change the date from day to day.

TO MAKE SYRINGES IN MEMPHIS.

The Sanitary Reversible Syringe Co., of Memphis, Tennessee, was granted a charter in November last, to manufacture reversible syringes and other druggists' supplies. The company expects to have its own factory in Memphis. The stock is $25,000, divided into shares of a par value of $25.

The Editor's Book Table.

INDIA-RUBBER JOURNAL DIARY AND YEAR BOOK, 1913. Maclaren & Sons, Limited, London, England. [Cloth, 4to, 96 pages, besides 122 pages of diary.]

THIS diary, which is in the usual convenient size of 11½ x 8½ inches, has once more appeared, and is fully up to the mark of its predecessors. Its statistical and other information in the introductory portion is as complete as usual, and shows much careful preparation.

HENDRICK'S COMMERCIAL REGISTER OF THE UNITED STATES. Twenty-first Annual Edition, 1912. Samuel E. Hendricks Co., New York. [Cloth, 1,575 pages, price $10.]

That this standard work has reached its twenty-first annual edition is the best proof of the valuable character of its contents. To the export buyer it is particularly valuable, as in the entire work there are 13,333 headings, each representing one article, with the names of the makers in each instance.

Those who know the "Register" will appreciate the completeness of this new edition, while those who have not hitherto used it, will probably find it just what they have been wanting.

FACTORY MUTUAL INSURANCE. The achievements of seventy-five years. Compiled to observe the fiftieth anniversary of the Arkwright Mutual Fire Insurance Co., Boston. [Pasteboard. 8vo. 123 pp. Privately printed.]

The Arkwright Mutual Fire Insurance Co., Boston, is one of the Associated Factory Mutual Insurance Companies, generally called "The New England Mutuals." It is an association of manufacturers for the prevention of fire loss and for the securing of insurance at cost. The company was founded in 1860, and this book is a souvenir of its half century of successful existence; and it very properly takes the form of a history of the whole mutual fire insurance development since its beginning in 1835. In that year a New England manufacturer conceived the idea that by getting other manufacturers to associate themselves with him, and by agreeing to share fire losses in their plants they could all secure insurance on much better terms. The idea was a good one. It was put into practice and has grown to such an extent that at the present time, in this country and in Canada, there are about 20 of these manufacturers' mutual insurance associations, with a valuation of their combined manufacturing properties aggregating over $2,000,000,000. Among this number might be mentioned the Rubber Manufacturers' Mutual Insurance Co., founded in 1884, and having an amount of risk of about $60,000,000.

The work of these mutual associations has been very successful in the great decrease of disastrous fires. As an illustration, during the 15 years from 1880 to 1895 there were among the plants insured by these companies 31 large fires, with an aggregate loss of $7,500,000; in the last 15 years from 1895 to 1910, notwithstanding the fact that the average amount of risk covered by these companies had increased from $550,000,000 to $1,200,000,000, the number of large fires dropped to 8, and the total loss to $1,400,000.

Naturally as all losses are borne by all members of the associated companies, all are mutually interested to have the best protection for their own property and for that of all other members. As a consequence great care is exercised in the original construction of plants and in their proper protection thereafter.

The above paragraphs give but a faint idea of the amount of interesting information in this little book. It contains a number of tables and charts and a great many cuts made from photographs; and altogether contains a mass of insurance information of great value to manufacturers, builders, architects and mill engineers. The book is not for sale, but can be secured, by people whose occupation makes them interested in the subject, from the Arkwright Mutual Fire Insurance Co., Boston.

CHEMICAL ANALYSIS OF LEAD AND ITS COMPOUNDS, by John A. Schaeffer, A. M., Ph. D., and Bernard S. White. Joplin, Missouri, 1912. Picher Lead Co. [8vo, cloth, 63 pages.]

It is a standing requirement of modern technical practice that the laboratory must control every process from the raw material to the various finished products. The Picher Lead Co., the well-known makers of lead compounds, in response to numerous and constant requests, have grouped the leading features of standard and new analyses of lead ores, pig lead, sublimed white and blue lead, red lead, litharge and other preparations of the mineral, in this concise and well prepared booklet.

The analyses are followed by accurate calculations, which facilitate their application.

An interesting section of the work deals with the idiometric determination of antimony and arsenic in lead-antimony alloys, while a comprehensive index assists in prompt reference to the various branches of lead analysis.

By means of the blank pages of ruled writing paper bound in at the back of the booklet, notes of study or experiments can be preserved. To users of lead in its various forms this little work will prove invaluable.

MY TOWN, OR COMMUNITY PATRIOTISM. BY GEORGE BLACKstone Irving. Rogerson Press, Chicago, Illinois. [8vo. 136 pp. Paper covers. Price 50c.]

This book has nothing in the world to do with rubber, as it is primarily an attempt to create and increase local patriotism. Indirectly, it has this much to do with the rubber industry, viz., that many of the most conspicuous rubber manufacturers have been, and are illustrious examples of local patriotism—not only looking after the welfare of their own employes, but contributing handsomely toward everything that promotes the welfare of the community in which their enterprise is situated. The author of this book, Mr. Irving, has lectured for years on this subject, traveling all through the country. His particular forte is to visit a town that needs "boosting," and to show the citizens in what way they can coöperate for the best interest of the community, and consequently for the best interest of each of its citizens.

When our synthetic friends succeed in producing rubber, as they hope to, at 8 cents a pound, so that it can be used liberally for pavement purposes, the promotion of local welfare and the rubber industry will be closely associated, for naturally the first suggestion that any wise community improver will then make, will be the taking up of noisy cobbles and the putting down of streets of noiseless rubber.

GRENIER'S RUBBER ANNUAL FOR 1912.

This is a quarto publication of 44 pages, printed on a very fine quality of coated paper, which not only brings out the text sharply but shows the most excellent halftones, of which there is a generous number, to extreme advantage.

More and more attractive with each recurrent year, this annual has become a standard feature of rubber trade journalism. Its literary contents include articles on "The Rubber Position," by S. M. Gluckstein; "Brazilian Rubber Reforms," by Arthur Shepard; "Rubber Costs and Commissions," by J. F. Ashly, "Rubber and Ten Per Cent.," by Sidney Pearson, and "Factors Affecting the Valuation of Rubber Shares," by W. A. Tinnock.

The illustrations, 86 in number, represent scenes on as many estates, and add greatly to the interest and value of the publication.

NEW TRADE PUBLICATIONS.

THE printing department of the B. F. Goodrich Co., produces exceedingly effective work. Another illustration of this fact is to be found in a lot of a dozen folders recently sent out from that department, descriptive of various products of the Goodrich mill. One large folder entitled "Comfort and a Few Facts," describes the hot water bottles made by the company's drug supply department. About thirty varieties of bottles are illustrated in the folder. Another folder, with eight detached leaflets included in it, has to do with the automobile and its appurtenances. The detached leaflets are each devoted to some particular tire trouble, which is described with a cut of a tire showing the effect of this particular trouble, after which the remedy is given. These leaflets are entitled: "Skidding," "Anti-Skid Devices," "Over-Speeding," "Wheel Out of Alignment," "Bad Roads," "Running in Car Tracks," and "Over-Loading."

The Goodrich Company, in addition, has recently distributed three little folding leaflets calling attention to three of its lines of production, namely, surgeons' rubber aprons, dental dam, and infant bulb syringes. The circulars are each printed in two colors and adequately illustrate the articles described. Regarding surgeons' aprons, the company calls attention tc the fact that aseptic reliability and facility of sterilization can only be successfully realized by the use of high grade material. The company's dental dam is prepared from fine pure gum and will retain its elasticity under all conditions. Furthermore, it is translucent and does not get sticky. These three folders will be of interest to dealers in these various lines.

Three other folders pertain to the hose department, one describing and illustrating steam hose, another the Goodrich Sand Blast Hose, and the third, hose used in drilling. It is an effective lot of commercial literature.

With the object of making their "Analyzed Chemicals" more generally known, and at the same time keeping in touch with their old friends, the J. T. Baker Chemical Co., of Phillipsburg, New Jersey, issue a monthly booklet entitled the "Chemist Analyst"; containing papers by practical experts on subjects connected with laboratory practice.

In the latest number received, "Electric Combustion Furnaces," "Air in the Electrolytic Determination of Copper," and other subjects are treated, while Mr. J. T. Baker, the president, gives his views on "Manufacturing Incompatibilities." As appealing to the chemist and analyst, the title is fully justified by the contents.

The sprightly little publication issued by the Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut, contains in its January issue the usual amount of entertaining and instructive reading. It is a 16mo., consisting of 16 pages and cover and full of moralizing and humor, with facts interspersed with fables. Incidentally, it leaves the impression on the mind of the careful reader that Beacon Falls footwear is eminently desirable. It has one excellent feature that publications of this sort sometimes lack—there is just enough of it. Enclosed in this little booklet is a new price list for 1913.

The Katzenbach & Bullock Co., of 100 William street, New York, importers and dealers in chemicals, have just issued a 24-page catalogue 3½ x 6½ inches, giving a list of the chemicals in which they deal. These chemicals are first given in alphabetical order, and then the various trades supplied by the firm are alphabetically arranged, while under each trade is a further classified list of the chemicals that are of particular interest to that trade. This makes the book exceedingly easy for purposes of reference.

The Eureka Fire Hose Manufacturing Co., manufacturers of the Eureka "Paragon Red Cross" brand of fire hose, have issued a large wall calendar, on which there are a number of photographic illustrations showing the fireman at his hazardous occupation.

SOUVENIR OF CANADIAN TOUR OF BRITISH MANUFACTURERS.

In connection with the British manufacturers' Canadian tour of last year, under the auspices of the Dominion Government, the "Financial News" of London has issued a handsome souvenir number of 72 pages, richly illustrated. It closely follows the itinerary of the party; one of its special features being the reproduction of the groups photographed at various points. Views of picturesque Canadian scenery and of street scenes at the different cities visited, enhance the attractiveness of this artistic issue; while the narrative text is concise and full of information.

TWO RECENT BOOKS WHICH REFER TO RUBBER.

As Viewed by Our English Correspondent.

RUBBER LITERATURE.

In the present paragraph I am not referring to any new book on rubber, but to the chapters on rubber in a new book. This book is entitled "Industrial and Manufacturing Chemistry" (Organic), by Geoffrey Martin, assisted by numerous specialists familiar with British and American practice. Section IX, Part I, dealing with the rubber industry, is by A. J. Carrier, B. Sc., of whose nationality I must confess my ignorance. As the space given to the subject only covers twelve pages, and a good part of this is occupied by illustrations of David Bridge & Co.'s machinery, it will be seen that condensation has had to be severely employed.

It is doubtful whether the rubber industry of today can be satisfactorily dealt with in so short a space, and a few paragraphs on the general topic of the manufacture of rubber goods can convey but little of utility to seekers of information. We read that inner air tubes for cycles and motors are made of high-class rubber; while cruder rubber articles such as dolls, toys, goloshes, etc., contain a very large amount of mineral fillers or rubber substitutes. I don't know that a high-class golosh is really a cruder article than an inner tube, and I have my doubts about the large amount of substitute present. Raw caoutchouc is said to melt under ordinary pressures at about 190 degs. F. to a gummy mass (presumably Centigrade is intended). In the paragraph dealing with Devulcanization and Re-manufacture of Rubber it is stated that it has not been found possible up to the present to free vulcanized rubber from its sulphur, and thus transform it into a product akin to raw rubber. This, of course, is quite correct, but why head the paragraph "Devulcanization"? This part concludes with some useful trade statistics. Part II is by Mr. Martin himself and deals efficiently with the topic of synthetic rubber, and is probably the most up-to-date detailed account of the chemistry of this somewhat abstruse and complicated business.

Another new and imposing volume, in which rubber finds mention, is "Industrial Chemistry," edited by Allen Rogers and Alfred B. Aubert and various collaborators. This is an entirely American production. The information on rubber and its manufacture covers only 2½ pages in the chapter on resins and gums. The general statement that raw rubber is very impure, with water, sand, wood, etc., will doubtless be objected to by planters in the Far East. It is hardly correct to say that litharge is only added as a filler in inferior grades of goods. Under "Reclaimed Rubber" we read that the most widely employed method is Goodyear's, which consists in reducing the waste to a finely divided state, mixing with normal rubber and sulphur and beating for several hours under heavy pressure.

Another statement is that hydrofluoric acid is kept in hard rubber containers. In England, at any rate, it is kept in gutta-percha containers. Altogether, the rubber information strikes me as decidedly weak, compared with the treatment of other materials and manufactures in the volume.

New Rubber Goods in the Market.

MOTORCYCLE GRIPS REINFORCED WITH STEEL.

THE Continental Rubber Works are offering manufacturers of motorcycles a new grip which they call "The Woven Steel Reinforced Grip." The two cuts here shown will give a good idea of what these grips are. It will be

A "CONTINENTAL ERIE" GRIP.

seen that these grips have a woven steel reinforcement in the center or relief part of grip, which strengthens the grip at its weakest point. This woven steel reinforcement is pliable and does not take away from the grip any of its resiliency. The company has a number of patents now pending,

CROSS SECTION SHOWING STEEL REINFORCEMENT.

covering this construction and also covering reinforcements of other materials to be used in the grip. It proposes to make these grips for the manufacturers, but it does not propose to issue any licenses for others to make them. The Continental Rubber Works, Erie, Pennsylvania.

ALL RUBBER AIR VALVES.

A certain inventive genius in Hot Springs, Arkansas, has devised an all-rubber valve for rubber air receptacles, like tires for the auto, bicycle and motorcycle, and also for air-cushions and footballs. This valve does away with all metal parts, and one claim for its superiority is that it cannot be injured by the creeping of the tire. Here are four illustrations which may possibly make the working of the valve a little plainer. No. 3 shows the valve by itself; No. 4, a cross-section of it; No. 1, a cross-section of the valve fitted into a tire; and No. 2, a side view of the valve when fitted and firmly attached to the tire. The theory is this: that the lower

1. 2. 3. 4.

end of the valve which projects into the tire, or other air-chamber, is of such soft collapsible rubber that when the tire or other chamber is filled with air the pressure causes the valve to come together, entirely closing the air passage. A rubber cap is fastened on the outer end of the tube, as shown in Fig. 2, serving still further to make the tube air tight. Theoretically, this is an interesting valve; as to just how far it has been tested in practice, information is lacking. The inventor and patentee is Mr. P. P. Wood, Hot Springs, Arkansas.

THE ENGLISH RESILIENT WHEEL AND TIRE.

Excellent reports come across the water regarding the Lynton Resilient Wheel and Tire, which seems to be a happy combination where the wheel and tire work together, each increasing the resiliency of the other, and the two together giving practically a pneumatic effect to a solid tire. The tire (as will be seen by the accompanying illustrations) is a solid tire in blocks. This sectional character of course greatly increases the economy of the tire, as it is not necessary to discard an entire tire when one part of it becomes injured or worn.

It is the peculiar construction of the wheel, however, that gives the Lynton combination its distinctive character. This wheel is formed of two steel discs. One disc is rigidly attached to the hub, while the other disc, by means of a form of ball-joint, which allows it to rock in any direction upon the hub, has a pronounced element of "give" to it; which greatly increases the resiliency of the tire. These two discs are so correlated that the tire—which is fitted into a seat formed by the curving and spreading of the two discs at their outer circumference—flattens out when any obstruction is encountered and causes the two sides of the rim to spread. This spreading is possible through the arrangement of the loose disc. But while the rim at the point of contact is spreading, the part of the rim diametrically opposite, that is, at the top, correspondingly contracts; so that not only is that part of the tire which touches the ground operating to overcome the obstruction, but the corresponding section of the tire farthest removed is also operating for the same purpose—the lower section flattening out, while the upper section is being compressed.

THE LYNTON WHEEL AND TIRE.

This interplay of tire and wheel gives the "Lynton" a peculiar resiliency. These wheels are made with a single tire for pleasure cars, and also with double tires for commercial vehicles. The accompanying cuts show both the single and the double wheels. [The Lynton Wheel and Tire Syndicate, Ltd., Longford Bridge, Warrington, England.]

DEEP CUT RIVETS TO GRIP THE ROAD.

THE Leather Tire Goods Co., of Niagara Falls, New York, is out with a new chrome leather tire cover differing from its earlier products in having at intervals of 2 inches very deep cup rivets, intended to take a strong grip of icy and snowy roads. It is the hope of the manufacturers that this cover will do the work which is now generally accomplished by the inconvenient chain—which is not only inconvenient but hard on tire and road-bed alike.

Some Rubber Interests in Europe.

GOOD RECORD OF DERMATINE VALVES.

IN June, 1911, a large sugar refinery in Whitechapel, London, installed an air pump manufactured by W. H. Bailey & Co., Ltd., of Manchester, England. This pump was supplied with the valves made by the Dermatine Co., Ltd., of London. Recently the pump has undergone an inspection, the valves being taken out. They have been re-measured, and it is found that although the pumps have been maintaining a vacuum of over 29 inches night and day for 11 months, the valves have worn on one side less than 3/64 of an inch. The good result attained has been to a large degree due to the fact that the valves were fitted with the Patent Anchor Bush which eliminates any tendency to enlargement in the central hole. It thus maintains a high vacuum and avoids the expense of early stoppage of the machinery, and the possibility of spoiling the material in process of manufacture.

NEW COMPOUNDING INGREDIENT.

According to the claims made for the new compounding ingredient "Corub," recently introduced on the English market, it is specially adapted for mixing with rubber compounds where a large quantity of waste or reclaimed rubber is used, imparting greater elasticity and resilience to the finished product. At the same time it tends to preserve the rubber. It is supplied in various colors.

MR. CASPER KRAAY IN LONDON.

Mr. Casper Kraay, who is well known in rubber and financial circles on both sides of the water, has established himself as a rubber dealer at Dunster House, Mincing Lane, London, E. C., under the style of Casper Kraay & Co. Doubtless we are interpreting the sentiments of his American friends in wishing him good luck and a prosperous new year.

A VALUABLE COMBINATION DIARY.

Typke & King, Ltd., 16 Mincing Lane, London, india-rubber chemists and chemical manufacturers, have favored their customers with an extremely convenient desk diary. It is a combination diary and writing pad. When folded up it is 11 x 13 inches in size; the top, finished in crimson leatherette, opens in the middle, disclosing a blotter pad with leatherette corners and quite large enough for ordinary desk purposes; while the left leaf when folded back proves to be a diary about 10½ x 6 inches in size, one week being covered by each page. It is not a particularly inexpensive form of diary—but that will not seriously militate against its welcome by the trade. At the front of the diary there is a calendar for the years 1913 and 1914, together with discount and interest tables, tables of money equivalents in various countries, Post-Office regulations, and other information such as a business man needs for ready reference.

THE JOSEPH FYNNEY DIARY.

Joseph Fynney & Co., india-rubber merchants and importers of Liverpool, have issued to their particular branch of the trade, a valuable little diary, of a size to go easily in the pocket, and yet containing pages enough for a memorandum for every day of the year, and besides that, a great volume of information of particular value to the rubber man. For instance, there is a table occupying 21 pages showing, for the benefit of raw rubber buyers, the loss in washing rubber—that is, the shrinkage in washing being known, the table gives the money equivalent. Then there is a table occupying a number of pages giving the equivalents of English money per pound, in cents per pound, and in francs and marks per kilo. Another valuable table gives the equivalent in kilograms of English weights. Then a number of pages are devoted to the Pará receipts and values for the last seven years. Another table shows vulcanizing pressure and temperature. These are but a few instances of the volume of valuable information this little book contains.

THE FOURTH INTERNATIONAL RUBBER EXHIBITION.

Mr. A. Staines Manders, the organizing manager of the two rubber expositions held in London in 1908 and 1911 and of the Rubber Exposition recently held in New York, announces the Fourth International Rubber and Allied Trades' Exhibition, to take place in London during June, 1914. It will be under the patronage of His Majesty, King George V; the president will be Sir Henry Blake, G. C. M. G., and the vice-president will be The Right Honorable Lord Elphinstone. In conjunction with this rubber exhibition, occurring at the same time but in another building, will be held the First International Cotton, Fibre, Tropical Products and Allied Trades Exhibition, of which Mr. Manders will also be organizing manager.

JOSEPH FYNNEY & CO.'S LONDON OFFICE.

Joseph Fynney & Co., rubber merchants and importers, have recently opened a London office at 155 Fenchurch street, which will deal more particularly with plantation rubbers.

THE MANUFACTURE OF ELECTRICAL INSTRUMENTS IN EUROPE.

The Bureau of Foreign and Domestic Commerce is about to issue a monograph dealing with the manufacture of electrical instruments and meters in Europe. The report is by H. B. Brooks, commercial agent of the Department of Commerce and Labor, who recently inspected 31 of the most important electrical works of England, France, Germany, and Italy. The products of each concern are treated in detail and descriptions are given of the buildings, equipment, labor conditions, kinds of material used, and the markets in which the products are sold.

PROGRESS OF DANISH TIRE COMPANY.

The Danish United Rubber and Tire Co. has paid for the last business year a dividend of 12 per cent. as compared with 10 per cent. for the preceding annual period. Its capital has recently been increased from the equivalent of $84,000 to $140,000.

CHANGE IN GERMAN TIRE COMPANY.

The International Rubber Tire Co., Limited, of Wittenberg, Germany, has removed its headquarters to Hamburg; at the same time changing its name to the International Rubber Industry Co., Limited.

NEW GERMAN AUTOMOBILE FACTORY.

According to Frankfurt advices a new automobile factory, to be styled the "Taunus" works, is contemplated in the neighborhood of that city. The capital will equal $1,500,000. and will be taken up by Count Posadowsky-Wehner, in conjunction with Herr von Brandenstein.

TRADE NEWS NOTES.

Some 1,500 skilled workmen and a large number of native laborers are employed in the Cape Province and the Transvaal in the manufacture of carriages and automobiles, but there are no builders of chassis in South Africa. Hence the tariff commissions of the various states have recommended their admission at a normal rate of duty, with the object of encouraging the building of motor bodies in the country. Motor vehicles are gradually superseding in South Africa those drawn by horses.

The trade mark "Rambler" has been registered in Germany for automobiles by the Thomas B. Jeffery Co., of Kenosha, Wisconsin.

Contrasted with a loss for the preceding annual period equaling $92,000, the last business year of the Harburg-Vienna Rubber Factories showed a profit of about $280,000. This result is attributed to absence of the fluctuations in the rubber market which had marked the preceding annual period. A dividend of 6 per cent. has been declared.

RUBBER PLANTING IN FORMOSA.

By Our Regular Correspondent.

THE Japanese government does not facilitate the acquisition of land in Formosa for rubber plantations, though the boom of 1909 and 1910 directed attention to the island and its possibilities as a source of rubber.

Five planters have, however, started plantations after careful preparation, and with the permission of the government. The total area of these plantations represents 6,124 ko (about 15,310 acres); the principal holders being:

	Ko.	Acres.
Mr. Fujii	460	1,150
Mr. Mukono	830	2,075
Mr. Murai	3,134	7,835
Toyo Rubber Co., Ltd.	1,000	2,500
Fujikura Electric Wire and Rubber Co., Ltd.	700	1,750
Total	6,124	15,310

Mr. Kunishige Watanabe and the Formosan Agricultural and Forestry Co. are applying for permission to plant 1,200 ko (3,000 acres).

Rubber planting commenced in Formosa in 1908, at which time experiments were made at the Kagi government rubber planting beds with all kinds of rubber seeds. These included *Hevea* from South America, *Manihot* from Hawaii, *Castilloa* from Central America, *Ficus* from Borneo and the South Seas, as well as *Funtumia* and *Landolphia* from Africa.

Some years before, the existence had been discovered of the *Gomu Katsura*, or rubber vine, which was recognized as a source of wild rubber, a full botanical report on which was issued by the government and was reproduced in the Japanese papers, with the result that several leading Japanese rubber manufacturers visited Formosa to investigate the vine. Among them were Messrs. Isaburo Yamada and Tomekichi Matsumoto of the Fujikura Electric Wire and Rubber Co. The American and British governments, through the United States Department of Agriculture and the British Imperial Laboratory, discovered the excellence of the vine. It grows thickly in groups of twenty or thirty, at a height of 1,200 feet or thereabout above sea level.

With a view of testing the merits of this vine, the Japanese government distributed 100 pounds of the latex among various factories, for the production of different kinds of manufactures. At the same time they tried to plant it by a method of grafting, but on account of its slow growth it was finally decided to plant rubber trees from various parts of the world, which have produced the following results:

Hevea (planted in April, 1907).—In April, 1911. the trees varied from 5 feet 7 inches to 11 feet 3 inches in height.

Manihot (planted in March, 1908).—At the end of May, 1910, the largest tree was 29 feet high and 12 inches in circumference at the base.

Castilloa, in the same period as recorded for *Manihot*, had attained a height of 6 feet 4 inches with 7 inches circumference of the trunk.

The following details illustrate the climatic conditions in the various provinces of Formosa:

	Average Temperature. Fahr.	Annual Rainfall. Inches.	Days of Frost in a Year.
Taihoku	70.7	83.42	1.6
Taichu	71.6	74.38	.9
Tainan	73.4	66.14	.1
Koshun	75.9	85.63	.0

Taihoku is at the northern end of the island and Koshun at its southern extremity. The climate is thus well fitted for rubber cultivation, particularly in the southeastern part, where it has grown twice as well as in the official rubber planting beds at Kagi, towards the west of the island.

In October, 1910, Mr. Bradford, an American expert from Hawaii, in conjunction with Mr. Masaichi Mukono (already mentioned), applied to the government for a lease of 830 ko, or about 2,075 acres. In Mr. Bradford's opinion *Manihot* grows better in Formosa than in Hawaii; other kinds also growing satisfactorily and Pará twice as well in the latter island.

The government, however, does not encourage plantations, preferring to see the results of a few years before expressing a definite view. One ground of apprehension is the fear of damage to *Manihot* from the hurricanes to which Formosa is exposed.

EXISTING PLANTATIONS.

With regard to the plantations already referred to, covering an area of 15,310 acres, Mr. Fujii, who has 1,150 acres in Hozan, is the oldest planter and has planted *Manihot*, while Mr. Mukono's previous experience of Pará and *Manihot* planting has not been favorable. Both he and Mr. Fujii depend more on the proceeds of cotton than of rubber.

Mr. Kichibei Murai, a wealthy resident of Tokyo, is the largest owner, with 7,835 acres. He has only *Manihot* and planted 2,000 acres with 50,000 trees in the rainy season of 1912 along with 200,000 camphor trees. The latter were specially for the purpose of forestation. Camphor, it will be recalled, is the chief product of Formosa.

The Toyo Rubber Co., of Tokyo, has acquired 2,500 acres, which will probably be planted during the ensuing spring.

Some authorities think Formosan rubber growing has passed through the experimental stage and has good prospects. All depends on the results of the first tappings, some five or six years after planting.

[Formosa, an island to the east of China, was ceded to Japan by the former country in 1895. Its length is 235 miles and its area 41,402 square miles. The population is 3,039,751.]

DETERMINATION OF WET RUBBER IN LATEX.

An instrument for the determination of the amount of wet rubber in latex has been invented by Mr. Thomas Cockerill, Chief Instructor of the Technical Schools, Colombo. The results of five years of experiments have convinced him of the infallibility of the "Latexometer," for at once estimating, within a fraction, the quantity of wet rubber contained in the latex brought in from the collecting area.

The "Latexometer" is similar to a hydrometer, only the body is brass plated with tin and the recording figures are placed on a metal tape. The set of instruments consists of five, each recording a certain range of yield; the five groups extending from 9 ounces to 117 ounces of wet rubber per gallon. In Mr. Cockerill's opinion, the range thus indicated would cover all practical requirements. If so desired, the scale can be marked to show the weight of dry rubber.

Experiments have been made at the Heneratgoda Gardens (through the courtesy of the officials), and at various plantations, including those of Gikiyanakande, Horana, and Talangama. The last-named experiments were conducted in presence of a representative of the "Times of Ceylon," which journal speaks favorably of Mr. Cockerill's invention, for which a patent specification has been accepted.

RUBBER SEED HUSKS AS FUEL.

The "Ceylon Observer" describes a new gas-producing plant in use at the Lauka Iron Works. This plant, instead of requiring charcoal, coal, anthracite, or liquid fuel, consumes rubber seed husks, which have hitherto been regarded as useless. They can be put straight into the generator from the estate. The power required is thus obtained at a minimum cost.

Some Rubber Planting Notes.

GOLD COAST ANNUAL REPORT.

THE report of the Agricultural Department of the Government of the Gold Coast for the year 1911 has recently been submitted by Mr. W. S. D. Tudhope, Director of Agriculture. An interesting table shows the following quantities (in pounds) of rubber shipped from the colony during the years 1902-1911 inclusive:

1902—1,599,974; 1903—2,258,981;
1904—4,013,837; 1905—3,633,106;
1906—3,649,668; 1907—3,549,548;
1908—1,773,248; 1909—2,764,190;
1910—3,223,265; 1911—2,668,667.

Five agricultural stations were controlled by the department; one in each province of the colony, one in Ashanti, and one in the Northern Territories. During the year there were distributed the following quantities of plants and seeds:

	Plants.	Seeds.
Pará rubber	43,455	94,115
Funtumia rubber	8,898	3,930,000 (262 lbs.)

Supplies of *Hevea Brasiliensis* seeds were far short of the demand.

Several European plantation companies are now actively operating in the colony and Ashanti. The African Rubber Co. has 55,075 Pará rubber trees, while the Avreboo Rubber Co. has 45,000 Pará and 37,000 *Funtumia*. The West African Rubber Plantations, Limited, have 300 acres planted with Pará rubber, and 150 acres with *Funtumia*.

Plantations in Ashanti include the Offin Rubber Plantations, Limited, with 50,000 *Funtumia* trees 8 months old, and 5,000 Pará trees 6 months old; as well as the Ashanti Rivers and Concessions, Limited, with 2,500 Pará rubber trees and 38,000 *Funtumia*.

The above particulars indicate the progress being made by European plantations; while the rates of growth show that rubber may be successfully grown in the Colony.

RUBBER EXPORTS OF FEDERATED MALAY STATES.

Official statistics received from the Malay States Information Agency, London, show the following rubber exports for the last three years:

	1910.	1911.	1912.
January	768,743	1,329,170	2,730,576
February	728,458	1,490,849	2,715,767
March	899,383	1,916,219	3,089,583
April	1,123,097	1,235,917	2,285,390
May	877,435	1,147,488	2,255,034
June	879,675	1,229,754	2,305,915
July	971,469	1,581,993	2,695,861
August	981,022	1,651,845	3,655,535
September	1,110,476	1,677,062	2,968,121
October	1,484,847	2,182,857	3,210,831
November	1,153,137	2,104,317	3,111,473
December	1,234,669	2,147,859	3,693,929
	12,212,411	19,695,330	34,718,015

These statistics refer to the Federated Malay States only, and do not include exports from the Straits Settlements or the Non-Federated Malay States. The output for 1912 constitutes a record for the first-named section of the Middle East.

SCOTTISH MALAY RUBBER CO., LTD.

The crop for the eleven months ended November 30, 1912 amounted to 156,736 pounds dry rubber, as compared with 88,411 pounds for the corresponding period of 1911.

RIVERSIDE (SELANGOR) RUBBER CO., LTD.

Returns for the eleven months ended November 30, 1912, show a total yield of 153,217 pounds, against 52,645 pounds for the same period of 1911; the quantity being almost threefold.

MR. BAXENDALE CORRECTS AN ERROR.

Some of the Ceylon papers had it that Mr. Cyril E. S. Baxendale, when in this country on the occasion of the recent Rubber Exposition, had stated that Malaya could produce rubber at 15 cents a pound. He has hastened to correct this error, saying that he never gave an opinion as to the lowest cost of production. He then continues:

"I told the American manufacturers that a well-managed, favorably situated, mature plantation can produce, with a handsome profit, at 2s. 6d. (60 cents) per pound. I might have put the figure lower, but I desired to ascertain whether they anticipated a sufficient development of their business, if rubber should fall to this price, to absorb the output of six years hence. I may say that their replies to this question were encouraging. Perhaps the most encouraging form of reply received was when every manufacturer I visited showed me the extensions to his factory, built, usually, out of the profits won last year, when the price of rubber averaged 5s. 2d., or just over twice the value I suggested."

ATTACHMENT TO TAPPING KNIVES.

A specification reported in the "Colombo Observer" has been lodged by Mr. George A. Craib. It is based on the fact that the bark, when cut in the process of tapping, has been let fall on the ground; thus taking up a certain quantity of extraneous matter, which affects the manufacture of the rubber. To prevent this, a receptacle is attached to the knife, which collects the bark cut from the tree in the process of tapping.

IMPROVEMENTS IN LATEX COLLECTION.

Mr. Oswald Dufaur-Clark, of Sungei Limau Estate, Perak, has been granted by the Government of the Federated Malay States, exclusive privileges for fourteen years, in respect to an improvement in the method of attaching latex-collecting cups to rubber trees. Similar privileges have been granted Messrs. J. G. Barclay and H. W. Weigall, of Kemendore Estate, Jasin, Malacca, for a latex cup holder.

PROPOSED GERMAN INVESTIGATIONS IN VENEZUELA AND GUIANA.

With the financial support of the heads of three leading German rubber manufacturing companies, an expedition is being organized which will visit the territory of the Orinoco and its affluents, for the investigation of rubber and balata conditions. Two years will be devoted to the work, which will be under the direction of Dr. Siegfried Benig, of Berlin, who lately returned from a visit to Venezuela. Satisfaction is being expressed at the prospect of the countries referred to being thus opened up to German enterprise, instead of being left in English and American hands.

BRAZILIAN AGRICULTURE.

According to cable advices from Rio de Janeiro, the estimates for the Ministry of Agriculture included about 36,000 contos of reis (about $12,000), for improvements in public services and the promotion of agriculture; including the advancement of the rubber industry in Amazonas and the other rubber producing States, in accordance with the plan elaborated by Dr. Pedro de Toledo, Minister of Agriculture. Among the features of this plan, it will be recalled, were the perfecting of the methods of production and extraction of rubber, as well as the reduction of cost of labor.

The Federal Senate at first proposed to cut out several of the items included in the estimates, but on hearing the explanations of Dr. de Toledo gave way and adopted the proposed legislation, which had already passed the Chamber of Deputies by a substantial majority.

NOTES FROM BRITISH GUIANA.

(From Our Regular Correspondent.)

FAILURE OF ANOTHER BALATA COMPANY, LABOR AND CAPITAL.

THAT 1912 has been a bad year for the balata industry is becoming only too evident by the official returns. We are now coming very close to the end of the year, and the export returns make lamentable reading. From January 1 to December 5, 1912, the amount exported has been 554,453 pounds, against 987,287 pounds during the same period last year. The difficulties of the season appear to have been too much for the Amsterdam Balata Co., which has gone into liquidation, with an indebtedness to laborers of $18,000, it is reported. The situation thus precipitated is an exceedingly unfortunate one; a number of laborers, about 300 it is said, have been dispatched to the interior, where they have been working for some months. It is known that two of the expeditions of this company have been involved in river accidents, caused, it is presumed, by undue recklessness in negotiating falls, which have had disastrous results, and there has been a certain amount of sickness in camp, in some cases with fatal results. The survivors of these expeditions return to town, find that their employers' business is in the hands of the Public Trustee, and that they can only get a small percentage of their earnings. This has precipitated a situation which was anticipated at the time the Balata Committee was investigating the conditions of the industry. No recommendation, however, was made to the committee. The Institute of Mines and Forests has now applied to the Government to remedy the situation by applying to the industry the following regulation that has been enforced for the past seven years in the gold industry: "No company or co-partnership, whether duly registered in this colony or not, shall be allowed to register laborers to work in any capacity in any mining district, otherwise than in the name of an individual resident in the colony, who must be the duly authorized attorney or representative of the said company or co-partnership, and who shall be held personally and individually liable for all the liabilities imposed by these regulations upon an employer of labor." Mr. James Winter, secretary of the Institute of Mines and Forests, has advanced the following reasons for taking this step on behalf of the Council of the Institute, in his letter to the Government: "Along with other witnesses that gave evidence before the Balata Commission, I urged the need of Mining Regulation No. 102 being made applicable to balata collecting. There is, however, no reference to this point in the report of the commissioners. Just at this juncture there have arisen circumstances in connection with the Amsterdam Balata Co., which very aptly illustrate the need of the regulation referred to. Many of the laborers of that Company now in town cannot get the wages due them, and the same will be the plight of some 300 who have not yet come to town. These men are without resources, and depend entirely upon the wages they earn in the interior, and after performing their duty it is extremely hard on arrival in Georgetown to find there is no money nor an attorney of the company they have worked for during months, to whom they may look for payment for services rendered. My Council are strongly of the opinion that this matter should not be overlooked, but dealt with when the matters connected with balata collecting are being considered, as foreshadowed in His Excellency the Governor's reference to that industry in his speech to the Combined Court."

ATTORNEYS AND LABORERS: QUESTION OF LIABILITY.

Mr. W. Maynard Payne, legal adviser to the Institute, in an interview, has given the following reasons in support of such legislation: "I always have been of the opinion that a clause similar in effect to that prevailing as regards the gold industry should be inserted in the balata regulations. If the employer receives a due and proper report on his concessions or grants, he should be able to cut his coat to his cloth, and there is no excuse for any employer who cannot give that remuneration, to which his laborers are entitled for their labor, the fruits of which he has himself disposed of. Such provisions I consider would be most advantageous where the balata industry is concerned, in fact I ventured to urge the necessity for them before the recent Balata Commission. I consider when work is paid for it should carry with it a certain proportion of responsibility. In the absence of any such enactment in the balata regulations, as I referred to, what is the position? The moment any trouble arises, the attorney of the foreign companies, can any day when it no longer suits his book, relieve himself of the responsibility, chuck up the power of attorney, throw everything on the broad back of the official receiver, and look on while the band plays. It is a case under certain implied conditions, namely that a certain amount of balata is to be obtained from a certain spot; when it is obtained it will be paid for at certain prices, and the laborers undertake to do a certain duty. If they do not do so they go to gaol, and what is sauce for the goose ought emphatically to be sauce for the gander, too. Introduce this section and a stop would soon be put to the indiscriminate acceptance of powers of attorney, without making due inquiry, or still more without being secured against possible eventualities as regards the financial status of the principals of the companies."

The "Daily Chronicle," commenting editorially on the proposal, says: "To what extent will a remedy be found by making the attorneys liable, it will be asked. Why should an attorney be held responsible for the failure of his principals? There is no reason, however, why attorneys should ever be called upon to discharge the liability they have incurred. The regulation proposed does not seek to be punitive, it seeks to be precautionary. . . . The object of such a regulation is to make the attorneys more careful in despatching expeditions. With such a regulation in force, attorneys would require their principals to give adequate security for their laborers' wages, before despatching expeditions to the balata forests; the absence of any such conditions does not remove the position far from Mr. Maynard Payne's definition—a gamble with other people's labor." Opposition to such a proposal appears unnecessary to say the least of it. If the regulation was deemed to be good for the gold industry, why should the Government deem it to be bad for the balata industry? That it has been good for the gold industry there can be no doubt. It has inspired caution in men who might otherwise have sent laborers to do work that is attended by some hazard and some risk."

THE GOVERNOR AND A HINTERLAND RAILWAY.

The chief need of the balata industry at the present time, as the Balata Committee emphasized in its report, is improved means of communication. As I have indicated in previous letters public opinion is rising in favor of a through line to Manaos, on the Amazon, which line could easily be made to take three-fourths of the balata output. It was anticipated that the new Governor, who was sent out here with a reputation as an administrator of constructive ability, would have favored this project. He has somewhat dampened the ardor of the enthusiasts by announcing in the course of a lengthy speech in the Legislature: "While guaranteeing the construction of a line to the far interior seems to me beyond the means of this colony, I wish to acquire personal knowledge of the country and there can be little doubt that a direct line from Georgetown to Manaos would be a great benefit to British Guiana, and that this Government should not put any obstacle in the way of capitalists who might be willing to undertake its construction." He also stated that "for the past year a specially engaged railway surveyor (Mr. J. Tew) has been employed in the surveying of a route for a railway from near Rockstone, the terminus on the Essequibo of the short line joining the Demerara and Essequibo Rivers, to the Potaro and the Goldfields of the Konawarook. His report has only just been

delivered, but will shortly be available. I fear that the estimated cost of construction is very high and that there is no doubt that this route is not suitable for adoption as a section of the main line to the interior of Brazil." His Excellency has pleaded for an extension of the Coast Railway as far as the Dutch frontier, but he is shortly to pay a visit to the Rupununi savannahs, which possess possibilities for rubber cultivation, and it is not to be understood that he has arrived at any dogmatic opinion. It is significant that in a memorandum which he submitted to the Legislature on the coast-railway extension he advocated the metre gauge for this and all future railways that may be built in this colony, because the metre gauge is in use in Brazil. There is presumptive evidence that His Excellency has a Brazilian frontier railway in view. It is by no means beyond the bounds of possibility that such a railway should take the form of an extension of the existing coast railway.

PROPOSED REMOVAL OF EMBARGO ON VENEZUELAN BALATA.

In the same speech His Excellency said that the "question of withdrawing the prohibition of importation of balata from Venezuela has long been under discussion. It is proposed to allow such importation, but subject to an import or transit-duty equivalent to the royalty on indigenous balata." His Excellency has thus speedily reversed the policy of his predecessor, who adopted a desperate remedy, which has done much harm to the Venezuelan balata industry and to the British Guiana township of Morawhanna. The removal of the embargo will be advantageous to the Georgetown merchants, whose representative, the Chamber of Commerce, has long advocated the admission of Venezuelan balata.

THE OUTLOOK FOR THE BALATA INDUSTRY; BETTER PROSPECTS FOR 1913.

At the present time there is severe industrial depression in the colony as a result of the long drought, and nowhere is this more apparent than in the balata industry. The sugar and rice crops are going to be short, and the figures relating to the balata output I have already quoted. There is likely to be a serious shrinkage in the spending capacity of the large amount of labor employed in the industry, which will be rendered worse by the unfortunate failure of the Amsterdam Balata Co. There can be no doubt that the balata industry is passing through a critical period. Three companies have dropped out, and those who have survived previous storms will have done well to have escaped heavy losses on the season that is now closing. The calamity of a long drought, following upon the labor difficulties of 1911, has been a crushing blow. Nevertheless, the position for the companies remaining is by no means hopeless, providing prudent and careful action is taken. The outlook at any rate is still being regarded optimistically. Mr. James Winter says that the prospections for next year have been very successful, and there is promise of a good season next year, providing weather conditions are favorable. The failure of some companies he attributes to bad management and unnecessary expense. To this, of course, has been added the important consideration that most of the grants within easy distance of Georgetown have been worked out, and the cost of despatching expeditions to the upper reaches of the river has proportionately risen.

The real remedy, of course, is an improvement in transit facilities, but even under the most favorable circumstances, that cannot be accomplished for years. Provided, however, that the labor difficulties are adjusted and the prospections are more honest than has always been the case in the past, 1913 should offer concessionaires some opportunity of retrieving the losses of the past two seasons. Employers and laborers are settling down, and the evil that arose from the necessity of sending all sorts of incompetent and inexperienced men to the balata concessions, after the first rush for labor, should show some signs of abatement. Managers have acquired more experience, and the men themselves are better equipped for performing their duties. The failure of some companies has shaken confidence to some extent, but prudent management next year should relieve the situation.

The failure that has marred the operations of the past two seasons has not entirely been the fault of the industry, if at all. Adverse circumstances have been supplemented by imprudent flotations. A gentleman well informed as to the circumstances of the industry has said: "I attribute the failure of these companies chiefly to their being over-capitalized, and to the fact that they paid very much more for their grants than they were actually worth. In a great many cases they acquired lands, which, after being prospected at great expense, proved valueless, and the consequence was the available working capital was exhausted. The Amsterdam Balata Co. suffered a great deal through the grants being such a long distance from Georgetown, and the journey the men had to take to get to the grants took roughly three months, while in addition they had immense difficulties to overcome. In their case their working capital has also been exhausted. The grants may or may not be valuable, but at the present time there is no information on the subject. This company had some grants within easy reach of the city, which, after prospection, proved valueless, after the spending of a great deal of money for that purpose.

If the balata business was worked more carefully, and a limited number of men sent up to prove grants that are known to be valuable, there is yet a great deal of money to be made. The balata industry has been an important factor in the colony's welfare for over 20 years and there are still grants at work now, which were working 20 years ago. This proves that if the trees are bled properly, the balata industry will continue for years. In a large number of cases the trees have been killed by bad bleeding; of course, where that takes place, the balata industry must die out. It is, therefore, much to the interest of the balata licensees to conserve the forests and it is also the duty of the government to do what they can, not only in that direction but also to increase them. That seems to be a point the government has missed up to the present. No doubt this year's losses are due to the drought, but the effect will be felt a great deal more in the first half of 1913 than it has up to the present. At least $120,000 ought to go into circulation in Water Street at the end of 1912, but will not, owing to the shortage in balata. The advances to balata bleeders in 1913 will necessarily be very much less than they were in 1912. Economy will have to be practised."

RUBBER IN TRINIDAD AND TOBAGO.

In an interesting special report, Mr. A. E. Collens, F. C. S., assistant analyst, Government laboratory, has dealt with the subject of rubber planting in Trinidad and Tobago. He traces the progress made since the introduction in 1876 of *Hevea*. At present about 150,000 *Hevea* are under cultivation, mostly in Trinidad, only a small number having been planted in Tobago. The cultivation of *Castilloa* has been taken up in various parts of Trinidad, where there are 500,000 trees; while in Tobago 120,000 have been planted. Of *Funtumina*, about 25,000 to 30,000 trees are being cultivated in the colony. *Landolphia* and *Ficus* have only been planted to a limited extent.

Many interesting particulars are given of official and other results as to tapping and yields.

BRITISH EXPERT'S VIEW OF BRAZILIAN SITUATION.

According to a recent cable from London, an expert has lately visited the East to study the question of rubber cultivation, on behalf of an important financial group. He also visited Pará and his report states that it is absolutely imperative for the Brazilian rubber planters to make three reforms. One of these is the adoption of the mode of incision employed in the East, while the others are the importation of Chinese labor and the reduction of the export duties on rubber.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED DECEMBER 3, 1912.

NO. 1,045,825. Testing-machine. W. W. Duncan, Watertown, Mass., assignor to Hood Rubber Co., Boston, Mass.
1,045,858. Life-preserver. H. Laprise, Holyoke, Mass.
1,045,937. Valve for automobile-tires. C. R. C. Borden, Brookline, Mass.
1,045,947. Bath-tub cover. W. W. Christensen, Portland, Ore.
1,045,955. Pneumatic tire. M. A. Dees, Pascagoula, Miss., assignor to American Tire Co., St. Louis, Mo.
1,046,033. Adjustable garden-hose supporter. W. O. Smith, Oxford, Mich.
1,046,068. Life-preserver. W. J. G. Hebs, St. Louis, Mo.
1,046,272. Emergency traction device. F. B. Comins, Sharon, Mass.

Designs.

43,310. Tire tread. A. P. Lohmann, assignor to The B. F. Goodrich Co.—both of Akron, Ohio.
43,311. Tire tread. A. P. Lohmann, assignor to The B. F. Goodrich Co.—both of Akron, Ohio.
43,330. Wheel. W. C. Teasdale, Jr., assignor to The Motor Car Mfg. Co.—both of Indianapolis, Ind.
43,332. Tire tread. B. G. Work, assignor to The B. F. Goodrich Co.—both of Akron, Ohio.

Trade Marks.

63,825. The Essenkay Co., Chicago, Ill. The word *Essenkay*. A compound for filling automobile tires in place of air.
65,509. Sealo Tire Co., Chicago, Ill. The word *Sealo* inside of tire. A composition for preventing leakage of air through punctures in pneumatic tires.

ISSUED DECEMBER 10, 1912.

1,046,424. Life-saving device. T. E. Aud, Herndon, Va.
1,046,451. Tire mail. J. B. Duhring, Chestnut Hill, Pa.
1,046,501. Socket member for water bags. M. C. Schweinert, West Hoboken, N. J., and H. P. Kraft, New York.
1,046,584. Syringe. M. A. Graffin and R. J. Gregg, Los Angeles, Cal.
1,046,629. Fastening device for tires. W. R. Morrison, Chicago, Ill.
1,046,686. Rubber tire protector. J. A. Utter, Crawfordsville, Ind., assignor of one-half to J. F. Utter, San Francisco, Cal.
1,046,712. Resilient wheel. B. Anderson and C. L. Miles, Boston, Mass.
1,046,760. Resilient wheel for vehicles. R. E. Fivey, Newark, N. J.
1,046,839. Vehicle washer. E. Muller, Weehawken, N. J.
1,046,855. Tire clencher ring lock. P. Recconi, San Francisco, Cal.
1,046,901. Hose connection. J. P. Tierney and L. Csernai, Youngstown, Ohio.
1,046,909. Hose reel. C. Wagner, Grantwood, N. J.
1,046,954. Anti-skidding device for motor vehicle tires. F. E. Bond, Walton, N. Y.
1,047,063. Hose coupling. J. H. Irving and M. Pedersen, Kenosha, Wis.

Design.

43,335. Tire tread. W. R. Blowers, Toronto, Ont., Canada.

Trade Marks.

24,146. Massachusetts Chemical Co., Walpole, Mass. The word *Dryfoot*. Waterproof textile fabric.
59,000. I. B. Kleinert Rubber Co., New York. The word *Brassiere*. Dress shields.
59,773. Kabus Rubber Co., New York. The word *Victor*. Rubber erasers and rubber bands.

ISSUED DECEMBER 17, 1912.

1,047,166. Repair or reinforcement of pneumatic tires. T. E. Cann, Leicester, England.
1,047,190. Resilient wheel. W. C. Fickes, Shirland, Ill.
1,047,204. Inner tube guard for pneumatic tires. S. Goodman, Bayonne, N. J.
1,047,268. Cushion wheel. J. Millar, assignor of one-half to D. Campbell—both of Arlington, N. J.
1,047,278. Traction wheel attachment. O. Olson, Brager, Minn.
1,047,297. Resilient wheel. L. S. Robbins and J. R. Davis, Vine Grove, Ky.
1,047,303. Spare tire cover. H. A. Sallop, New York.
1,047,268. Cushion wheel. J. Millar, assignor of one-half to D. Campbell—both of Arlington, N. J.
1,047,297. Resilient wheel. L. S. Robbins and J. R. Davis, Vine Grove, Ky.
1,047,352. Automatic air hose coupling. W. A. Weil, Findlay, Ohio, assignor of one-half to J. W. Grant, Uniontown, Ohio.
1,047,354. Ball. L. Wermeling, Covington, Ky., assignor to P. Goldsmith's Sons, Cincinnati, Ohio.
1,047,407. Resilient tire for vehicles. H. D. Hart, San Diego, Cal.
1,047,409. Pneumatic tire pump coupling. R. F. Hersey, Beverly, Mass.
1,047,485. Combination spring cushion tire wheel. R. F. Balding and H. P. Garland, Los Angeles, Cal.
1,047,495. Pneumatic wheel. A. Burfoot and J. Burfoot, Auckland, New Zealand.
1,047,504. Rubber shoe. J. T. Vrowley, assignor to The Beacon Falls Rubber Shoe Co.—both of Beacon Falls, Conn.
1,047,538. Spring tire for automobiles or other vehicles. G. A. and W. M. Krautter, Marion, Ohio.
1,047,544. Wringer. C. J. Marth, assignor to Wayne Mfg. Co.—both of St. Louis, Mo.
1,047,594. Expansible core for repairing tires. E. H. Trump, assignor of one-half to J. K. Williams—both of Akron, Ohio.
1,047,620. Pneumatic wheel. J. A. and R. R. Dennis, Cambridge City, Ind., assignors to International Pneumatic Wheel Co. of Indiana.
1,047,621. Pneumatic wheel. J. M. and R. R. Dennis, Cambridge City, Indiana.
1,047,642. Vehicle wheel. A. Jaeger, Jackson, Mo.
1,047,658. Jeweler's tool. A. J. Krueger, North Branch, Minn.
1,047,663. Turbine compressor or pump for elastic fluids. F. Lawaczeck, Aerzen, near Hameln, Germany.
1,047,750. Manufacture of rubber footwear. M. C. Clark, Providence, R. I.
1,047,790. Tire patch. R. E. Gregg, assignor to General Specialty Co.—both of Indianapolis, Ind.
1,047,803. Inner tube for automobile wheels. D. W. Harris, Platte City, Missouri.
1,047,888. Resilient vehicle wheel. J. Gaynor, assignor to Standard Resilient Wheel Co., Inc.—both of New York.

Design.

43,348. Tire tread. E. C. Shaw, assignor to The B. F. Goodrich Co.—both of Akron, Ohio.

Trade Marks.

64,714. W. S. Daniels, Boston, Mass. The words *New Era* written above the words *"Simply Honest."* Pneumatic tires.
64,869. Sté. Ame. Pour Le Commerce & l'Industrie du Caoutchouc, Brussels, Belgium. The word *Royal* under picture of tiger's head in circle. For automobile horn bulbs.
66,333. The Ringwalt Linoleum Works, New Brunswick, N. J. The word *Rubberoleum* fancily written. A waterproof floor covering similar to linoleum.

ISSUED DECEMBER 24, 1912.

1,047,918. Elastic fluid turbine. G. B. Collier, Kinderhook, N. Y.
1,047,962. Hose clamp. C. Marion, Petaluma, Cal.
1,048,054. Resilient wheel rim. J. Adman, assignor to A. M. Hovland—both of Minneapolis, Minn.
1,048,069. Syringe. E. E. Hall, Wausau, Wis., assignor to Layula W. Hall, Chicago, Ill.
1,048,120. Automatic air coupling. J. C. Wright, Kansas City, Mo.
1,048,138. Method of vulcanizing vulcanizable articles. W. W. Duncan, Boston, and N. E. Tousley, Watertown, assignors to Hood Rubber Co.—all of Massachusetts.
1,048,183. Cover for vehicle wheels. K. J. Lageson, Benson, Minn.
1,048,208. Device for repairing pneumatic tires.
1,048,215. Wringer. S. E. Schroeder, Minier, Ill.
1,048,238. Spring tire. P. Tysseling, Pella, Iowa.
1,048,326. Manufacture of composite tubes. W. Love, London, England.
1,048,367. Rubber heel. L. J. Soderlund, Two Harbors, Minn.
1,048,371. Pneumatic cushion spring for wheeled vehicles. J. W. Sutton, assignor to Mary Sutton—both of Brisbane, Queensland, Australia.
1,048,376. Anti-skidding device. R. J. Thiesen, and C. T. King, Jr., Atlanta, Ga.
1,048,385. Puncture repairer. W. R. Barstow, Oakland, Cal.
1,048,423. Puncture proof tire. W. McKay, New York.

ISSUED DECEMBER 31, 1912.

1,048,564. Elastic fluid turbine. J. F. Metten, Philadelphia, Pa., assignor to the Wm. Cramp & Sons Ship & Engine Building Co. of Pennsylvania.
1,048,813. Resilient wheel. W. F. Doll, Liberty, N. Y.
1,048,863. Hose reel. R. L. Notman, assignor to McKinnon Dash Co.—both of Buffalo, N. Y.
1,048,904. Elastic wheel for automobiles and other vehicles. A. Sordi, Lugano, Switzerland.
1,049,039. Rubber composition. W. F. Beasley, Plymouth, N. C.
1,049,046. Spring cushioned wheel. S. W. Buercklin, Prague, Okla.
1,049,067. Resilient tire for vehicle wheels. O. Erickson, and O. G. Sunden, Chicago, Ill.
1,049,071. Spring tire for vehicles. P. C. Fox, assignor to Fox Spring Tire Co.—both of Spokane, Wash.
1,049,090. Device for repairing pneumatic tire tubes. A. R. Hoeft, Chicago, Ill.
1,049,129. Resilient wheel. H. C. Moore, Cleburne, Texas.
1,049,142. Tire alarm. J. B. Polo, Clear Lake, S. D.
1,049,157. Tire. P. C. Seward, Petersburg, Va.
1,049,164. Shoe heel. W. E. Stedman, Zanesville, Ohio.
1,049,287. Clencher tire retaining device. S. Barnett, Tipton, assignor to Joseph Darlus Griffin, London—both of England.
1,049,300. Vehicle wheel. S. C. Harfield, Baltimore, Md.
1,049,313. Protective shoe for tires. J. A. Murphy, Holyoke, and R. J. Harrison, Chicopee Falls—both of Massachusetts.

Design.

43,412. Tire tread. E. C. Shaw, assignor to The B. F. Goodrich Co.—both of Akron, Ohio.

Trade Marks.

58,272. Louis Judell, New York. The words *Regime Shoe*. Boots, shoes, etc.
65,055. Federal Rubber Mfg. Co., Milwaukee, and Cudahy, Wis. The word *Rugged*. Rubber vehicle tires.

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1911.
**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 4, 1912.]

18,356 (1911). Isoprene; intermediate products. J. Y. Johnson, 47 Lincoln's Inn Fields, London.
18,391 (1911). Elastic bulbs for motor horns, etc. A. Cleret, 6 avenue Gambetta, Paris.
18,408 (1911). Balata plies in belts. R. Slack, Market Place, Chapel-en-le-Frith, Derbyshire.
18,430 (1911). Supplementary air tubes for tires. T. and J. Nuttall, 536 Romford Road, and R. Nuttall, Goodmayes avenue—both in Goodmayes.
18,431 (1911). Isoprene and similar hydrocarbons; caoutchouc. K. Gottlob, Prague-Vysocan, Austria.
18,452 (1911). Tread bands for tires. W. H. J. Willson, 40 Chapel street, St. Kilda, and S. Moody, Plenty Road, Preston—both in Victoria, Australia.
18,469 (1911). Tread bands with metal plates. T. H. Rushton, 158 Grimsby Road, New Cleethorpes, Lincolnshire.
18,470 (1911). Improvement in tread bands. G. A. Mortier, "Elsinore," Garstang Road, Fulwood, Preston, Lancashire.
18,540 (1911). Rubber covers for golf tees. W. H. H. Booth, 4 Woodlands Terrace, Blackhill, and W. H. Francis, Bays Hill, Ffynone Terrace—both in Swansea.
18,556 (1911). Spring wheels with pneumatic cushions. E. Jones, "The Poplars," Greenfield, near Holywell, North Wales, and W. S. Williams, 28 Bowring Road, Ramsey, Isle of Man.

18,562 (1911). Continuous elastic tire. C. A. Beauw, and A. C. Tyre Co., Union street, Sunderland.
[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 11, 1912.]
18,807 (1911). Elastic bands in spring wheels. O. Depres, 44 rue Africaine, and A. Richir, 18 rue de Danemark—both in St. Gilles-lez-Brussels, Belgium.
*18,839 (1911). Spring wheels with pneumatic cushions. C. D. Galvin, 1820 Wallace street, Philadelphia, Pa., U. S. A.
18,863 (1911). Compositions for sealing punctures in tires. G. H. Price, Queenstown, Cape Colony.
18,876 (1911). Spring wheels with pneumatic cushions. C. E. de Boos, Temona, New South Wales, Australia.
18,967 (1911). Stocking-suspenders. H Bunte, 22 Grabenstrasse, Dusseldorf, Germany.
19,027 (1911). Raising sunken vessels. F. L. Blonkinsop, Lansdowne Lodge, Lansdowne Crescent, Great Malvern, Worcestershire.
*19,038 (1911). Ear-protectors. J. A. R. Elliott, 7404 Third avenue, Brooklyn, New York, U. S. A.
19,080 (1911). Rubber tip in heel protectors. W. G. Rudolph, 84 Luisenstrasse, Offenbach-on-Main, Germany.
19,117 (1911). Rubber covering for printing rolls. E. Ludin, Dornach, Elsass, Germany.
[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 18, 1912.]
19,216 (1911). Spring wheels with rubber blocks. H. G. Hugon, 22 rue de Vic, Calais, France.
*19,218 (1911). Rubber tire with transverse holes. E. W. Morrow, 116 Broad street, New York, U. S. A.
19,245 (1911). Improvement in fitting of rubber gloves. H. F. Finlay, 75 York street, Sydney, Australia.
18,286 (1911). Spring wheels with pneumatic cushions. E. C. R. Marks, 57 Lincoln's Inn Fields, London.
19,293 (1911). Pneumatic cushions for springs. M. Sutton, "Stonehenge," Bowen Terrace, New Farm, Brisbane, Australia.
19,424 (1911). Composition for repairing tires. F. W. Farr, Cogenhoe, near Northampton.
19,504 (1911). Teeth-cleaning appliances. R. F. Gunther, 8 Clemenstrasse, Bonn, Germany.
19,522 (1911). Spring-wheel with pneumatic cushion. C. A. C. Rispaud, rue Etienne Jodelle, Paris.
19,562 (1911). Tread bands for tires. H. Agha, Eagle Lodge, Hale, Cheshire.
19,568 (1911). Repairing pneumatic tires, hose-pipes, etc. R. Jennings, P. O. Box 1809, Johannesburg, Transvaal.
[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 27, 1912.]
19,702 (1911). Vulcanizing presses. Soc. A. Olier et Cie, Clermont-Ferrand, Puy-de-Dome, France.
19,711 (1911). Rubber rings for use in planting bulbs. W. Dick, 28 Glebe street, Townhead, Glasgow.
19,770 (1911). Hot-water bottles, etc. T. Machin, 93 The Crescent, and T. H. Joy, 5 Great North Road—both in Woodlands, and D. W. Freeman, Finningley—both near Doncaster.
19,784 (1911). Coagulating latex. Freudweiler, 64 Feldeggstrasse, Zurich, Switzerland.
19,788 (1911). Coagulating latex. H. H. Markley and F. E. Mellinger, Lumija, Chiapas, Mexico.
19,881 (1911). Portable vulcanizer. R de C. de Peruzzis, Roosendael, Holland.
19,889 (1911). Rubber rings for billiard rollers. W. Westmoreland, 84 York Road, West Hartlepool.
19,901 (1911). Rubber surface for bowls. E. V. Row, Know Hill, Nutbank road, Norwich.
19,919 (1911). Erythrene, isoprene and intermediate products. P. A. Newton, 6 Breams buildings, Chancery lane, London.
19,950 (1911). Lace tags. W. and H. and W. Stommel, Barmen, Germany.
[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 31, 1912.]
*20,116 (1911). Improvements in tire covers. F. Power, 3930 Wyandotte street, Kansas City, Mo., U. S. A.
20,129 (1911). Compositions of rubber flint. Rauh-Gummi-Verwertungs-Ges., 48 Werderstrausse, Hamburg, Germany.
20,240 (1911). Apparatus for detecting punctures. H. T. Stephens, 4 Quay street, Garmarthen.
20,297 (1911). Waterproof fabrics for tires. J. Hoyle, Acre Mills, Hebden Bridge, Yorkshire, and A. J. Smith, Milne, 210 Venner road, Sydenham, London.
20,315 (1911). Football bladders, etc. J. W. Albers, 1 Bremergasse, Hamburg-on-Elbe, Germany.
20,438 (1911). Spring wheels with pneumatic cushions. A Lucia, 102 Corso Vittorio Emanuele, Rome.
20,463 (1911). Machinery belting. H. Panzetta, Carrara, Redhill, Surrey, and Panzetta Tire Syndicate, St. Michael's House, Cornhill, London.
20,481 (1911). Elastic tires and cores. M. D. Rucker, "Heimath," Foxley lane, Purley, Surrey.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

443,642 (May 9, 1912). J. A. Redfern. Rubber sole for footwear, etc.
443,700 (May 11). B. W. Wittenberg. Anti-skid system for pneumatic tires.
443,767 (May 13). E. C. Lena. Elastic tire.
443,926 (May 15). J. Höbel. Anti-skid system for automobiles.
443,973 (May 18). L. Linis. Improvements in rubberized fabrics for use as pneumatic tire covers.
444,059 (May 21). M. Gratz. Wheel with elastic tire.
444,026 (July 28, 1911). Chemische Fabrik Flörsheim, Dr. H. Nördlinger. Process of making products similar to rubber.
444,031 (July 27). Auquetil. Process of preparing rubber by synthesis.
444,062 (May 21, 1912). S. Block and S. Benima. Filling material for rubber and its process of manufacture.
444,244 (May 24). H. Zeuner. Elastic tire for wheels.
444,305 (May 28). M. A. Dees and McLeod. Mold for vulcanizing tires.
444,315 (August 4, 1911). J. Fiena. Elastic vehicle tire.
444,369 (May 23, 1912). S. M. Luguet. Soft wheel for automobiles and carriages.
444,423 (May 15). Dujardin. Rubber soles and heels for footwear.
444,467 (May 31). P. Seydel and N. Klemenz. Portable vulcanizing apparatus for repairing *en route* automobile tubes and tires, etc.
444,483 (May 31). W. Ure. Improvements in covers for pneumatic tires.
444,528 (June 1). N. Rosenblatt. Compound tire for automobiles, etc.
444,641 (August 12, 1911). H. Farjas. Shock absorbing vehicle tire.
444,628 June 3, 1912). McGraw Tire and Rubber Co., Process and apparatus for vulcanization.
444,646 (June 5). G. Molu and A. Wohlcken. Protector for vehicle tires.
444,804 (June 10). E. R. Riedinger and A. Fraser. Improvements in pneumatic tires.
445,025 (June 15). Weed Chain Tire Grip Co. Improvements in arrangements for repair of tires.
444,872 (June 12). C. D. Williams. Pneumatic vehicle wheel.
445,058 (August 23, 1911). Mendes de Almeida. Pneumatic vehicle tire.
445,107 (June 17, 1912). A. Von Linde. Pneumatic tire.
445,139 (June 18). E. H. Jones. Improvements in manufacture of pneumatic tires.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingenieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

254,548 (December 13, 1910). Production of rubber, its analogues and homologues. Farbenfabriken, vorm. Fried Bayer & Co., Elberfeld.
254,569 (May 27, 1909). Rubber protective covering for walls and floors of rooms containing electrical accumulators. Felten & Guilleaume, Mülheim-on-Rhine.
254,672 (January 26, 1912). Process for production of artificial rubber. Farbenfabriken, vorm. Fried Bayer & Co., Leverkusen and Elberfeld.
254,703 (September 30, 1909). Extraction of pure rubber from resinous crude material. Schön & Co., Harburg-on-Elbe.
254,868 (March 15, 1912). Production of rubber substitute. Farbenfabriken, vorm. Fried Bayer & Co., Leverkusen and Elberfeld.
254,847 (May 28, 1911). Elastic tire, in which the enclosed air is compressed by the pressure of the tire. F. T. Roberts, New York.
255,129 (March 13, 1912). Process for manufacture of Butadiene rubber, its homologues and analogues. Farbenfabriken, vorm. Fried Bayer & Co., Leverkusen and Elberfeld.
255,417 (December 14, 1911). Protective and anti-skid armor for pneumatic and solid tires. Rudolph Müller, Kiew, Russia.
255,679 (August 8, 1911). Process for manufacture of artificial rubber. Farbenfabriken, vorm. Fried Bayer & Co., Leverkusen.
255,680 (August 8, 1911). Manufacture of a product coming near to vulcanized rubber. Farbenfabriken, vorm. Fried Bayer & Co., Leverkusen.
255,703 (April 4, 1911). Production of a rubber substitute from oils and chloride of sulphur, in conjunction with suitable resins and neutralizing agents. Rubber Substitute, Limited (1910), London.
255,786 (January 27, 1912). Manufacture of products resembling rubber. Badische Anilin & Soda Fabrik, Ludwigshafen.
255,795 (February 28, 1911). Repair appliance for pneumatic tires. Gustav Joseph Martel, Chicago.
255,796 (March 17, 1912). Elastic vehicle tire. John Henry Messenger, London.
255,801 (June 23, 1912). Appliance for fastening pieces of rubber on heels. Alfred Weichelt, Dresden.

THE KINGDOM OF BELGIUM.

PATENTS PUBLISHED.

250,126 (1912). Gross (C. K. F. L.), Sporveisgade 31, Christiana, Norway. Process for manufacture of mass, acting as calazyator in the production of isoprene from oil, turpentine and other materials.
250,128 (1912). Gross (C. K. F. L.), Sporveisgade 31, Christiana, Norway. Process for manufacture of rubber from synthetic isoprene.
250,125 (1912). Gross (C. K. F. L.), Sporveisgade 31, Christiana, Norway. Process for the manufacture of synthetic isoprene.

Trade Marks, Rubber Articles, 1912.

"SINGER." MeG. Le Breton, 29 rue Fontaine-au-Roi, Paris.
"CONTINENTAL PARIS." Continental Manufactured Rubber Co., 146 avenue Malakoff, Paris.
"FIXO." MeA. B. Graves, 23 Rue dela Paix, Paris.

STATEMENT OF THE INDIA RUBBER WORLD.

Statement of the ownership, management, circulation, etc., of THE INDIA RUBBER WORLD, published monthly at New York, required by the Act of August 24, 1912.

Editor, Henry C. Pearson, Tompkins Corners, Putnam Co., New York.

Managing editor, John P. Lyons, 150 West Ninety-first street, New York City.

Business manager, Edward F. Pfaff, 94 Hawthorne street, Brooklyn, New York.

Publisher, The India Rubber Publishing Co., 15 West Thirty-eighth street, New York.

Owner, Henry C. Pearson, Tompkins Corners, Putnam Co., New York.

Known bondholders, mortgagees, and other security holders, holding 1 per cent. or more of total amount of bonds, mortgages, or other securities: None.

(Signed) HENRY C. PEARSON, *Editor.*

Sworn to and subscribed before me this 30th day of September, 1912.

(Signed) HELEN HEROLD, Notary Public,
(Seal) Kings County, No. 162.

Certificate filed in New York County. Term expires March 30, 1913.

Kings County Registers Certificate No. 882, New York County Registers Certificate No. 3082. (Commission continuous.)

Report of the Crude Rubber Market.

SINCE December 24, date of last report, the course of the London market for fine Pará has tended downwards, though the result has only been a falling off to the extent of 2*d.* per pound. Practically, the advance established during December has been lost; the figure at time of writing (January 25) being 4*s.* 5¼*d.*, as compared with 4*s.* 7¾*d.* on December 24, and 4*s.* 5*d.* on November 25. This position has been attributed to the relative abstention of buyers.

During the past four weeks plantation rubber has fallen 3*d.* per pound, likewise reverting to about the position it occupied at the end of November, the gain in December having been offset by subsequent reductions. The course of London prices for pale crepe, basis first latex, was: December 24, 4*s.* 7¼*d.*; December 31, 4*s* 7¾*d.*; January 6, 4*s.* 7*d.*; Jaunary 18, 4*s.* 6¼*d.*; January 23, 4*s.* 5¼*d.*; January 24 and 25, 4*s.* 4¼*d.* On the two last-named days Pará stood at 4*s.* 5¼*d.*

That the London plantation rubber auctions are getting a large part of the increased production is proved by the table in another column, which shows that the total offered in 1912, including the sale of December 31, was 18,069 tons, as compared with 9,945 tons for the year 1911.

Owing to the non-arrival of rubber afloat, the final sale of the year, on December 31, only included 350 tons, as compared with 930 tons in that of December 17. This fact led to keen competition, resulting in an advance of 2*d.* to 3*d.* over the prices of the preceding sale.

By the date of the next sale, January 14, large arrivals brought up the amount offered to 1,130 tons, this auction thus creating a record for quantity. The whole was sold at an average of 1*d* per pound under the rates of a fortnight earlier, thus making a good start for the new year.

On this basis English consumers operated extensively, apparently covering their wants for the immediate future.

At the Rotterdam sale of January 10, there were offered 33 tons Congo, 7 tons *Hevea*, and 5 tons *Ficus*, three-fourths of which sold on an average about 2 per cent. below valuations. The next sales at Rotterdam are fixed for February 18.

The Amsterdam sale of January 16 included 26 tons *Hevea* and 13 tons *Ficus*. In the former, valuations were about obtained, while an advance of 2 per cent. was realized for the latter.

On January 21 there was a sale at Havre including about 70 tons Congo rubber.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Parà grades, one year ago, one month ago, December 30—the current dates:

PARA.	Feb. 1, '12.	Jan. 1, '13.	Jan. 30, '13.
Islands, fine, new	108@109	102@103	98@ 99
Islands, fine, old	110@111	.....	.....
Upriver, fine, new	111@112	111@112	104@105
Upriver, fine, old	114@115	118@119	.....
Islands, coarse, new	64@ 65	56@ 57	51@ 52
Islands, coarse, old	.....	.....	.....
Upriver, coarse, new	94@ 95	82@ 83	79@ 80
Upriver, coarse, old	.....	.....	.....
Cametà	66@ 67	57@ 58	51@ 52
Caucho (Peruvian) ball	94@ 95	84@ 85	78@ 79
Caucho (Peruvian) sheet	.....	.....	.....
PLANTATION CEYLONS.			
Fine smoked sheet	133@134	112@113	109@110
Fine pale crepe	131@132	110@111	104@105
Fine sheets and biscuits	127@128	109@110	103@104
CENTRALS.			
Esmeralda, sausage	92@ 93	81@ 82	77@ 78
Guayaquil, strip	.....	.....	.....
Nicaragua, scrap	91@ 92	80@ 81	76@ 77
Panama	.....	.....	.....
Mexican plantation, sheet	90@ 91	.....	.....
Mexican, scrap	54@ 55	79@ 80	75@ 76
Mexican, slab	.....	.....	.....
Managabeira, sheet	60@ 62	.....	.....
Guayule	89@ 90	60@ 61	60@
Balata, sheet	56@ 57	.....	85@ 86
Balata, block	.....	.....	55@ 56
AFRICAN.			
Lopori, ball, prime	109@110	.....	.....
Lopori, strip, prime	105@106	.....	.....
Aruwimi	106@107	98@ 99	.....
Upper Congo, ball, red	112@113	101@102	.....
Ikelemba	.....	.....	.....
Sierra, Leone, 1st quality	95@ 96	96@ 97	95@ 96
Massai, red	102@103	99@100	96@ 97
Soudan, Niggers	.....	.....	92@ 93
Cameroon, ball	69@ 70	.....	75@ 76
Benguela	72@ 73	74@ 75	73@ 74
Madagascar, pinky	.....	.....	.....
Accra, flake	27@ 28	26@ 27	25@ 26
EAST INDIAN.			
Assam	.....	.....	.....
Pontianak	5⅝@5¾	6⅞@	7@7⅛
Borneo	.....	.....	.....

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine	4$200	Upriver, fine	5$300
Islands, coarse	2$100	Upriver, coarse	3$700
		Exchange	16 3/16*d.*

Latest Manáos advices:

Upriver, fine	5$500	Exchange	16 3/16*d.*
Upriver, coarse	3$500		

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During January a decided change has come over the money market as expected, rates easing very much and the demand improving from both city and out-of-town banks, with the best rubber paper selling at 5@5¼ per cent., and names not so well known 5½@6 per cent."

NEW YORK PRICES FOR DECEMBER (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine	$1.06@1.12	$1.04@1.07	$1.36@1.50
Upriver, coarse	.82@ .85	.90@ .93	1.00@1.05
Islands, fine	.96@1.02	.95@1.01	1.19@1.25
Islands, coarse	.54@ .58	.60@ .64	.70@ .73
Cametá	.56@ .60	.60@ .65	.72@ .76

SUMMARY OF NEW YORK RUBBER PRICES FOR 1912.

	UPRIVER.		ISLAND.		CAMETA.
	Fine.	Coarse.	Fine.	Coarse.	Coarse.
January	103@111	90@94	97@107	62@64	63@66
February	107@111	92@94	105@108	62@65	65@67
March	111@123	93@99	108@118	63@67	66@72
April	112@118	92@96	110@114	63@66	66@70
May	109@112	89@92	105@110	58@63	65@67
June	108@112	86@91	101@106	55@59	63@65
July	110@119	85@91	100@108	54@57	62@65
August	116@123	89@96	106@113	56@59	64@68
September	110@122	87@95	107@113	55@59	61@67
October	104@111	81@86	99@106	53@56	56@61
November	102@108	80@84	94@100	53@58	55@58
December	106@112	82@85	96@102	54@58	56@60
AVERAGE PRICES.					
1912	111¾	89½	105½	59	63¾
1911	118¼	95	110¾	64	70½
1910	201¼	136¼	189¾	90	100
1909	159¾	107	149¾	66¼	77
1908	93¼	67½	88¼	47½	52
1907	109¼	88	104½	61¾	65½

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK. Fine and Medium.	Coarse.		Total 1912.	Total 1911.	Total 1910.
Stocks, November 30....*tons*	152	24	=	176	358	156
Arrivals, December	1,231	423	=	1,654	1,741	1,533
Aggregating	1,383	447	=	1,830	2,099	1,689
Deliveries, December	1,170	421	=	1,591	1,767	1,478
Stocks, December 31.....	213	26	=	239	332	211

	PARA. 1912.	1911.	1910.	ENGLAND. 1912.	1911.	1910.
Stocks, Nov. 30...*tons*	1,265	3,050	1,190	260	935	1,335
Arrivals, December...	4,200	3,455	2,315	959	884	1,248
Aggregating	5,465	6,505	3,505	1,219	1,819	2,583
Deliveries, December..	4,185	3,830	2,830	969	994	1,093
Stocks, December 31.	1,280	2,675	675	250	825	1,490

	1912.	1911.	1910.
World's visible supply, December 31..*tons*	4,527	5,852	3,891
Pará receipts, July 1 to December 31.....	15,655	14,635	13,400
Pará receipts of caucho, same dates.....	2,790	1,760	2,370
Afloat from Pará to United States, Dec. 31	1,379	1,300	435
Afloat from Pará to Europe, Dec. 31.....	1,379	720	1,080

African Rubbers.

NEW YORK STOCKS (IN TONS).

December 1, 1911.....	60	July 1, 1912.....	62
January 1, 1912.....	58	August 1	85
February 1	150	September 1	156
March 1	90	October 1	89
April 1	80	November 1	90
May 1	62	December 1	80
June 1	94	January 1, 1913.....	60

IMPORTATIONS OF RUBBER INTO THE UNITED STATES.

	1909.	1910.	1911.	1912.
Fine Pará .....*tons*	11,982	10,274	10,818	13,185
Coarse Pará	5,609	4,622	5,074	6,056
Plantation Ceylon	1,730	3,611	6,556	14,003
Centrals and Caucho.....	4,961	4,636	4,316	6,469
East India and Africa.....	6,847	9,773	8,324	8,338
Total	31,129	32,916	35,088	49,051

Rubber Stock at Para.

On May 31, 1912, the stock had increased, but receded by June 30; and had again fallen off on July 31. Large sales by the syndicate materially reduced the stock by the end of August, from which point it had slightly increased by September 30. A further increase was shown on October 31. The stock had dropped by November 30 to the lowest point reached in 1911 or 1912, very slightly increasing by the close of 1912.

May 31, 1911.....*tons*	5,350	March 31, 1912....*tons*	2,730
June 30.....	4,545	April 30.....	2,770
July 31.....	3,884	May 31.....	2,995
August 31.....	3,450	June 30.....	2,685
September 30.....	3,102	July 31.....	2,300
October 31.....	3,320	August 31.....	1,355
November 30.....	3,050	September 30.....	1,420
December 31.....	2,675	October 31.....	1,845
January 31, 1912.....	3,370	November 30.....	1,265
February 29.....	3,240	December 31.....	1,280

LONDON RUBBER AUCTIONS 1911 AND 1912.

	1911. Offered Tons.	1912. Offered Tons.
January—First series	360	491
Second series	371	339
Third series	254	614
February—First series	325	494
Second series	469	848
March—First series	180	483
Second series	345	710
April—First series	376	526
Second series	495	748
May—First Series	421	693
Second series	295	659
Third series	130	400
June—First series	280	170
Second series	248	260
July—First series	287	561
Second series	281	579
Third series	269	660
August—First series	131	789
Second series	495	870
September—First series	432	964
Second series	455	896
October—First series	404	832
Second series	437	920
November—First series	393	731
Second series	525	742
December—First series	467	810
Second series	420	930
Third series	400	350
Total	9,945	18,069

WEEKLY MOVEMENT OF LONDON PRICES FOR FINE PARA, 1912.

[IN SHILLINGS AND PENCE PER POUND.]

January 5, 1912.....	4/4½	July 19	4/10
January 12	4/5½	July 26	4/11¾
January 19	4/5½	August 2	4/11
January 26	4/8	August 9	5/0½
February 2	4/7	August 16	5/0½
February 9	4/6½	August 23	5/2
February 16	4/6¾	August 30	5/1¾
February 23	4/7½	September 6	4/11½
March 1	4/7½	September 13	4/9½
March 8	4/9	September 20	4/8
March 15	4/10½	September 27	4/7
March 22	5/1½	October 4	4/7
March 29	4/11½	October 11	4/7
April 5	4/11	October 18	4/6½
April 12	4/11	October 25	4/6
April 19	4/10¼	November 1	4/4½
April 26	4/9	November 8	4/5
May 3	4/7½	November 15	4/5¼
May 10	4/7½	November 22	4/5¼
May 17	4/7¾	November 29	4/5½
May 24	4/7½	December 6	4/7
May 31	4/7½	December 13	4/7
June 7	4/8½	December 20	4/6½
June 14	4/10	December 27	4/7½
June 21	4/9½	January 3, 1913.....	4/7¼
June 28	4/7½	January 10.....	4/6½
July 5, 1912.....	4/9	January 17.....	4/6½
July 12	4/10	January 24.....	4/5¼

CONSUMPTION OF INDIA-RUBBER BY THE UNITED STATES AND CANADA (IN TONS).

[From the Annual Statistical Summary of MEYER & BROWN, New York.]

DETAILS.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
Imports to United States...	23095	20468	23208	21842	24760	27623	28635	29936	29433	29477	31129	32916	35088	50051
Exports to Europe.....	300	450	680	430	490	274	357	1625	558	480	681	1340	823	430
	22795	20018	22528	21412	24270	27349	28278	28311	28875	28991	30448	31576	34265	49621
Add stock on January 1....	591	712	1198	1399	331	256	305	537	365	606	1553	1332	523	636
	23386	20730	23726	22811	24601	27605	28583	28848	29240	29603	32001	32908	34788	50257
Less stock close of year....	712	1198	1399	331	256	305	537	365	606	1553	1332	523	636	605
Deliveries to manufacturers.	22674	19532	22327	22480	24345	27300	28046	28483	28634	28050	30669	32385	34152	49652

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

DECEMBER 16.—By the steamer *Justin*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss	147,800	23,900	94,200	16,200=	282,100
General Rubber Co.	107,500	18,600	50,500	.....=	176,600
New York Commercial Co.	106,200	15,300	26,700	17,600=	165,800
H. A. Astlett	43,200	8,600	45,800	23,700=	121,300
Henderson & Korn	3,100	1,000	27,700	108,600=	140,400
Meyer & Brown	41,000	3,400	4,800	5,300=	54,500
De Lagotellerie & Co.	22,800	3,600	13,900	1,700=	42,000
Robinson & Co.	28,300	.....	4,000	.....=	32,300
G. Amsinck & Co.	9,300	300	5,900	2,800=	18,300
Ed. Maurer	5,400	900	500	.....=	6,800
Total	514,600	75,600	274,000	175,900=	1,040,100

DECEMBER 23.—By the steamer *Clement*, from Manáos and Pará:

Arnold & Zeiss	398,100	76,100	161,100	135,300=	770,600
New York Commercial Co.	118,600	39,800	49,000	51,100=	258,500
General Rubber Co.	116,200	33,500	21,700	700=	172,100
H. A. Astlett	63,100	7,600	56,800	5,500=	133,000
Robinson & Co.	45,000	9,300	42,100	20,800=	117,200
Meyer & Brown	29,900	10,300	10,300	.....=	50,500
Hagemeyer & Brunn	12,500	1,100	8,600	.....=	22,200
Henderson & Korn	6,700	2,100	12,100	.....=	20,900
De Lagotellerie & Co.	.....	.....	11,900	.....=	11,900
Ed. Maurer	5,000	300	2,600	.....=	8,900
Total	795,100	180,100	376,200	213,400=	1,564,800

JANUARY 4.—By the steamer *Pancras*, from Manáos and Pará:

Arnold & Zeiss	293,500	46,300	157,300	41,900=	539,000
Robinson & Co.	145,300	12,400	21,400	.....=	179,100
General Rubber Co.	90,100	16,500	57,400	7,100=	171,100
H. A. Astlett	70,100	18,300	51,400	17,100=	156,900
New York Commercial Co.	81,200	23,800	24,400	21,400=	150,800
Henderson & Korn	53,600	16,000	43,500	2,400=	115,500
Meyer & Brown	21,400	2,500	.....	.....=	23,900
Total	755,200	135,800	355,400	89,900=	1,336,300

JANUARY 16.—By the steamer *Benedict* from Manáos and Pará:

Arnold & Zeiss	518,800	71,200	174,300	22,700=	787,000
New York Commercial Co.	166,400	60,600	50,800	13,900=	291,700
General Rubber Co.	128,200	12,100	86,100	2,000=	228,400
Meyer & Brown	116,200	13,100	.....	.....=	129,300
Henderson & Korn	26,000	10,500	67,100	200=	103,800
H. A. Astlett	39,200	9,500	29,200	17,300=	95,200
Robinson & Co.	29,200	.....	900	.....=	30,100
G. Amsinck & Co.	6,800	300	7,800	2,900=	17,800
Ed. Maurer	300	2,200	3,900	.....=	6,400
Total	1,031,100	179,500	420,100	59,000=	1,689,700

PARA RUBBER VIA EUROPE.

POUNDS.

DECEMBER 23.—By the *President Lincoln*=Hamburg:

Ed. Maurer (Fine)	10,000	
N. Y. Commercial Co. (Fine)	9,000	19,000

DECEMBER 24.—By the *Amerika*=Hamburg:

Ed. Maurer (Fine)	50,000	
Rubber Trading Co. (Fine)	7,000	57,000

DECEMBER 27.—By the *Colon*=Mollendo:

W. R. Grace & Co. (Caucho)		8,000

DECEMBER 30.—By the *Campania*=Liverpool:

Raw Products Co. (Fine)	18,000	
Arnold & Zeiss (Caucho)	70,000	
Raw Products Co. (Coarse)	22,500	110,500

DECEMBER 31.—By the *Celtic*=Liverpool:

N. Y. Commercial Co. (Fine)		13,500

JANUARY 2.—By the *Kroonland*=Antwerp:

L. Blitz (Fine)		11,000

JANUARY 6.—By the *Patricia*=Hamburg:

Wallace L. Gough Co. (Fine)	15,000	
Rubber Trading Co. (Fine)	7,000	
Ed. Maurer (Fine)	7,000	29,000

JANUARY 8.—By the *Carmania*=Liverpool:

Raw Products Co. (Fine)	6,000	
Arnold & Zeiss (Caucho)	75,000	
Raw Products Co. (Coarse)	11,500	92,500

JANUARY 14.—By the *President Grant*=Hamburg:

In transit (Fine)		11,500

JANUARY 20.—By the *Augusta Victoria*=Hamburg:

Meyer & Brown (Fine)		11,000

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

POUNDS.

DECEMBER 23.—By the *President Lincoln*=Hamburg:

Ed. Maurer		15,000

DECEMBER 23.—By *El Sol*=Galveston:

Charles T. Wilson		*30,000

DECEMBER 23.—By the *Altai*=Colombia:

G. Amsinck & Co.	2,500	
Isaac Samuels	2,500	
Caballero & Blanco	2,000	7,000

DECEMBER 24.—By the *Amerika*=Hamburg:

Arnold & Zeiss		11,500

DECEMBER 26.—By the *Guantanamo*=Tampico:

New York Commercial Co.	*67,000	
Continental-Mexican Rubber Co.	*45,000	
Arnold & Zeiss	*35,000	*147,000

DECEMBER 26.—By the *Steiermark*=Hamburg:

General Rubber Co.		17,000

DECEMBER 27.—By the *Frutera*=Honduras:

A. Rosenthal & Sons	5,000	
West Coast Rubber Co.	1,500	
Suzarte & Whitney	1,000	7,500

DECEMBER 27.—By the *Minneapolis*=London:

Arnold & Zeiss		50,000

DECEMBER 27.—By the *Colon*=Colon:

G. Amsinck & Co.	11,000	
Dumarest Bros. & Co.	7,000	
L. Johnson & Co.	4,500	
American Trading Co.	4,000	
Isaac Brandon & Bros.	3,500	
United Export Co.	1,500	
Wessels, Kulenkampff & Co.	1,500	
Mecke & Co.	1,000	34,000

DECEMBER 28.—By the *Niagara*=Havre:

Henderson & Korn	33,500	
In transit	11,000	44,500

DECEMBER 28.—By the *Thespis*=Bahia:

Adolph Hirsch & Co.		13,500

DECEMBER 28.—By the *Morro Castle*=Frontera:

G. Amsinck & Co.	10,000	
Charles T. Wilson	2,500	
H. Marquardt & Co.	2,500	
General Export Commission Co.	1,500	
E. Steiger & Co.	1,000	17,500

DECEMBER 28.—By the *Turialba*=Costa Rica:

Isaac Brandon & Bros.	4,500	
G. Amsinck & Co.	3,500	
Andean Trading Co.	2,000	
R. Castillo & Co.	2,000	
A. Held	1,000	
Gillespie Bros. & Co.	1,000	14,000

DECEMBER 30.—By the *Campania*=Liverpool:

Arnold & Zeiss		9,000

JANUARY 2.—By the *Georgia*=Liverpool:

Adolph Hirsch & Co.		20,000

JANUARY 2.—By the *Montosa*=Tampico:

Continental-Mexican Rubber Co.	*80,000	
Arnold & Zeiss	*25,000	*105,000

JANUARY 2.—By the *Sigismund*=Colon:

G. Amsinck & Co.	7,000	
W. R. Grace & Co.	7,000	
Piza, Nephews & Co.	4,000	
Pablo Calvet & Co.	3,000	
A. Held	2,000	
Wessels, Kulenkampff & Co.	1,500	24,500

JANUARY 6.—By *El Alba*=Galveston:

Ed. Maurer	*30,000	
Charles T. Wilson	*11,500	*41,500

JANUARY 6.—By the *Patricia*=Hamburg:

Ed. Maurer		*17,000

JANUARY 6.—By the *Esperanza*=Frontera:

Harburger & Stack	4,500	
General Export Commission Co.	3,500	
American Trading Co.	2,500	
Meyer & Brown	1,500	12,000

JANUARY 6.—By the *Mandeville*=Belize:

Manhattan Rubber Mfg. Co.	7,000	
A. Rosenthal & Sons	4,500	
G. Amsinck & Co.	2,500	
Eggers & Heinlein	3,000	
In transit	3,500	20,500

JANUARY 7.—By the *Westerwald*=Colombia:

Kunhardt & Co.	7,000	
Mecke & Co.	3,000	
Johnson-Mottley Co.	3,000	
Caballero & Blanco	2,500	
Maitland, Coppell & Co.	2,500	
A. Held	1,500	19,500

JANUARY 8.—By the *Panama*=Colon:

G. Amsinck & Co.	9,000	
Isaac Brandon & Bros.	5,500	
Charles E. Griffin	4,500	
Elias & Abdoo	2,000	
Graham, Hinkley & Co.	1,500	
Colombia Smelting Co.	1,000	23,500

JANUARY 9.—By the *Seguranca*=Tampico:

Continental-Mexican Rubber Co.	*125,000	
Arnold & Zeiss	*22,000	
For Europe	*70,000	*217,000

JANUARY 10.—By the *Almirante*=Colombia:

G. Amsinck & Co.	3,000	
H. C. Coleman	3,000	
R. Castillo & Co.	2,000	
Mecke & Co.	1,000	9,000

JANUARY 11.—By the *Mexico*=Vera Cruz:

H. Marquardt & Co.	1,500	
W. L. Wadleigh	1,000	
Harburger & Stack	1,000	
G. Amsinck & Co.	1,000	4,500

JANUARY 13.—By the *Caronia*=Liverpool:

Adolph Hirsch & Co.		34,000

JANUARY 14.—By the *President Grant*=Hamburg:

Ed. Maurer	11,500	
Ed. Maurer	*11,000	22,500

JANUARY 15.—By the *Cedric*=Liverpool:

Henderson & Korn		15,000

JANUARY 15.—By the *Prins Frederik*=Colon:

Andean Trading Co.	3,500	
Pottsberg Ebling Co.	3,000	
Gravenhorst & Co.	2,000	
Isaac Brandon & Bros.	1,500	10,000

JANUARY 18.—By the *Antilla*=Tampico:

Continental-Mexican Rubber Co.	*75,000	
For Europe	*25,000	*100,000

JANUARY 20.—By the *Augusta Victoria*=Hamburg:

Henderson & Korn	45,000	
Ed. Maurer	*45,000	90,000

JANUARY 20.—By the *Monterey*=Frontera:

Charles T. Wilson	5,000	
Maitland, Coppell & Co.	4,500	
Herman Kluge	3,000	
E. Steiger & Co.	2,500	
J. W. Wilson & Co.	2,000	
Harburger & Stack	2,000	
Willard Hawes & Co.	1,500	
H. Marquardt & Co.	1,500	
W. L. Wadleigh	1,000	
General Export Commission Co.	1,000	24,000

JANUARY 21.—By *El Mundo*=Galveston:

Charles T. Wilson		*34,000

JANUARY 21.—By the *Colon*=Colon:

G. Amsinck & Co.	20,000	
L. Johnson & Co.	5,500	
A. Rosenthal & Sons	3,500	
Piza, Nephews & Co.	3,500	
Wessels, Kulenkampff & Co.	4,000	
Pablo Calvet & Co.	4,500	
Eggers & Heinlein	3,500	
Mecke & Co.	2,500	
R. G. Barthold	2,500	
Heilbron, Wolff Co.	1,500	51,000

JANUARY 21.—By the *Altai*=Colombia:

A. Held	2,500	
Caballero & Blanco	2,500	
Roldau & Van Sickle	2,500	
R. Castillo & Co.	1,500	9,000

JANUARY 22.—By the *Prinz August Wilhelm*=Colon:

Pottsberg Ebling Co.	5,500	
Andean Trading Co.	4,500	
G. Amsinck & Co.	4,500	
Gillespie Bros. & Co.	1,000	
Isaac Brandon & Bros.	1,000	16,500

AFRICAN.

		Pounds.
DECEMBER 23.—By the *President Lincoln*=Hamburg:		
Wallace L. Gough Co	34,000	
Ed. Maurer	35,000	
Robert Badenhop	7,000	
Meyer & Brown	5,500	81,500
DECEMBER 24.—By the *Lapland*=Antwerp:		
Robinson & Co	29,000	
George A. Alden & Co	11,000	
Arnold & Zeiss	9,000	
Meyer & Brown	2,000	51,000
DECEMBER 24.—By the *Amerika*=Hamburg:		
Ed. Maurer	65,000	
Wallace L. Gough Co	20,000	
Arnold & Zeiss	15,000	
Meyer & Brown	11,000	
George A. Alden & Co	9,000	
Robert Badenhop	7,000	
General Rubber Co	5,500	
Rubber Trading Co	2,500	135,000
DECEMBER 26.—By the *Minneapolis*=London:		
General Rubber Co		34,000
DECEMBER 26.—By the *Steiermark*=Hamburg:		
Ed. Maurer	15,000	
Raw Products Co	3,500	18,500
DECEMBER 30.—By the *Campania*=Liverpool:		
Arnold & Zeiss	45,000	
Henderson & Korn	22,500	
Ed. Maurer	22,500	
George A. Alden & Co	13,500	
A. W. Brunn	4,500	108,000
DECEMBER 30.—By the *New York*=London:		
Meyer & Brown	11,000	
Charles T. Wilson	13,500	24,500
DECEMBER 30.—By the *Celtic*=Liverpool:		
George A. Alden & Co	15,000	
James T. Johnstone	11,500	
Raw Products Co	3,500	30,000
DECEMBER 31.—By the *Bordeaux*=Havre:		
Arnold & Zeiss	22,500	
Ed. Maurer	3,500	26,000
JANUARY 2.—By the *Kroonland*=Antwerp:		
Meyer & Brown	90,000	
Arnold & Zeiss	20,000	
George A. Alden & Co	34,000	
Wallace L. Gough Co	25,000	
Rubber Trading Co	9,000	
Raw Products Co	11,000	189,000
JANUARY 2.—By the *Touraine*=Havre:		
Meyer & Brown		27,000
JANUARY 3.—By the *Hudson*=Bordeaux:		
Arnold & Zeiss		34,000
JANUARY 6.—By the *Patricia*=Hamburg:		
George A. Alden & Co	50,000	
Wallace L. Gough Co	9,000	
Robert Badenhop	11,000	
Rubber Trading Co	22,500	
J. T. Johnstone	5,500	98,000
JANUARY 8.—By the *Carmania*=Liverpool:		
George A. Alden & Co		22,500
JANUARY 8.—By the *Filomachi*=Lisbon:		
General Rubber Co	56,000	
Ed. Maurer	7,000	63,000
JANUARY 8.—By the *Rochambau*=Havre:		
Ed. Maurer		22,500
JANUARY 8.—By the *Hamburg*=Hamburg:		
Ed. Maurer	56,000	
George A. Alden & Co	22,500	
Arnold & Zeiss	22,500	
Rubber Trading Co	22,500	
Meyer & Brown	7,000	
Robert Badenhop	2,500	133,000
JANUARY 8.—By the *La Savoie*=Havre:		
Meyer & Brown		100,000
JANUARY 10.—By the *Hilbrook*=Lisbon:		
Santos & Seguna	45,000	
General Rubber Co	11,000	56,000
JANUARY 10.—By the *Zeeland*=Antwerp:		
J. H. Rossbach & Bros	15,500	
Meyer & Brown	7,000	22,500
JANUARY 10.—By the *Madonna*=Lisbon:		
Wallace L. Gough Co		11,500
JANUARY 10.—By the *St. Paul*=London:		
Arnold & Zeiss	15,000	
General Rubber Co	11,500	
George A. Alden & Co	7,000	
Meyer & Brown	5,000	38,500
JANUARY 13.—By the *Caronia*=Liverpool:		
General Rubber Co	13,500	
Arnold & Zeiss	5,500	
George A. Alden & Co	3,500	
A. W. Brunn	2,500	
Robert Badenhop	2,000	27,000
JANUARY 13.—By the *Germania*=Lisbon:		
Santos & Seguna		22,500
JANUARY 14.—By the *President Grant*=Hamburg:		
Ed. Maurer	45,000	
Wallace L. Gough Co	13,500	
Meyer & Brown	35,000	
Robert Badenhop	5,500	
George A. Alden & Co	2,500	101,500
JANUARY 15.—By the *Cedric*=Liverpool:		
James T. Johnstone	11,500	
Wallace L. Gough Co	11,000	22,500
JANUARY 16.—By the *Minnetonka*=London:		
Charles T. Wilson		10,000
JANUARY 17.—By the *Craighead*=Lisbon:		
George A. Alden & Co		15,500
JANUARY 20.—By the *Mexico*=Havre:		
George A. Alden & Co	25,000	
Arnold & Zeiss	22,500	
Ed. Maurer	13,500	61,000
JANUARY 20.—By the *Baltic*=Liverpool:		
James T. Johnstone	22,500	
Robinson & Co	7,000	
George A. Alden & Co	2,500	32,000
JANUARY 20.—By the *Philadelphia*=London:		
Ed. Maurer	33,500	
George A. Alden & Co	13,500	47,000
JANUARY 20.—By the *Augusta Victoria*=Hamburg:		
Ed. Maurer	80,000	
George A. Alden & Co	25,000	
Wallace L. Gough Co	10,000	
Robert Badenhop	11,000	
Raw Products Co	3,500	
Meyer & Brown	4,500	134,000

EAST INDIAN.

[*Denotes Plantation Rubber.]

			Pounds.
DECEMBER 23.—By the *Pathan*=Singapore:			
L. Littlejohn & Co	*70,000		
Ed. Maurer	*45,000		
Wallace L. Gough Co	*20,000		
Otto Isenstein & Co	*11,500		
New York Commercial Co	*5,500	*152,000	
DECEMBER 24.—By the *Amerika*=Hamburg:			
Rubber Trading Co	*11,500		
Meyer & Brown	*5,500		
James T. Johnstone	*3,500	*20,500	
DECEMBER 24.—By the *Lapland*=Antwerp:			
Meyer & Brown		*30,000	
DECEMBER 26.—By the *Edinburgh*=Colombo:			
New York Commercial Co	*125,000		
Meyer & Brown	*90,000		
Ed. Maurer	*20,000		
William H. Stiles	*11,500		
H. W. Peabody & Co	*5,500	*252,000	
DECEMBER 26.—By the *Minneapolis*=London:			
New York Commercial Co	*165,000		
Arnold & Zeiss	*100,000		
Ed. Maurer	*60,000		
James T. Johnstone	*70,000		
Meyer & Brown	*35,000		
Malaysian Rubber Co	*34,000		
Charles T. Wilson	*34,000		
Robinson & Co	*22,500		
Robert Badenhop	*11,500		
Raw Products Co	*7,000		
William H. Stiles	*7,000		
In transit	*100,000	*646,000	
DECEMBER 27.—By the *Majestic*=London:			
Arnold & Zeiss	*22,500		
New York Commercial Co	*20,000		
Robinson & Co	*9,000		
Meyer & Brown	*7,000		
In transit	*34,000	*92,500	
DECEMBER 30.—By the *Trifels*=Colombo:			
Meyer & Brown	*40,000		
New York Commercial Co	*50,000		
Ed. Maurer	*7,000		
L. Littlejohn & Co	*7,000	*104,000	
DECEMBER 30.—By the *New York*=London:			
New York Commercial Co	*45,000		
Meyer & Brown	*35,000		
Arnold & Zeiss	*34,000		
Robinson & Co	*25,000		
Charles T. Wilson	*22,500		
In transit	*65,000	*226,500	
DECEMBER 31.—By the *Minnehaha*=London:			
General Rubber Co	*115,000		
James T. Johnstone	*34,000		
New York Commercial Co	*15,000		
Ed. Maurer	*22,500		
Raw Products Co	*5,500		
Rubber Trading Co	5,000		
General Rubber Co	22,500	219,500	
JANUARY 2.—By the *Kroonland*=Antwerp:			
Meyer & Brown	*190,000		
Arnold & Zeiss	*15,000		
Rubber Trading Co	*9,000	*214,000	
JANUARY 3.—By the *Oceanic*=London:			
Arnold & Zeiss	*170,000		
New York Commercial Co	*95,000		
Ed. Maurer	*56,000		
Meyer & Brown	*11,000		
Robinson & Co	*11,500		
Robert Badenhop	*13,500	*357,000	
JANUARY 4.—By the *Potsdam*=Rotterdam:			
Meyer & Brown	*22,500		
Robinson & Co	*4,500	*27,000	
JANUARY 6.—By the *Patricia*=Hamburg:			
Wallace L. Gough Co		*11,500	
JANUARY 9.—By the *Zeeland*=Antwerp:			
Meyer & Brown		*60,000	
JANUARY 9.—By the *Minnewaska*=London:			
Ed. Maurer	*35,000		
James T. Johnstone	*33,000		
Meyer & Brown	*20,000		
L. Blitz	*10,000		
Rubber Trading Co	*7,000		
Adolph Hirsch & Co	*7,000	*112,000	
JANUARY 10.—By the *St. Paul*=London:			
Arnold & Zeiss	*125,000		
New York Commercial Co	*70,000		
Henderson & Korn	*20,000		
Ed. Maurer	*9,000		
L. Littlejohn & Co	*9,000	*233,000	
JANUARY 10.—By the *Kasenga*=Colombo:			
Meyer & Brown	*40,000		
New York Commercial Co	*40,000		
L. Littlejohn & Co	*15,000	*95,000	
JANUARY 14.—By the *President Grant*=Hamburg:			
Ed. Maurer	*10,000		
James T. Johnstone	*5,000	*15,000	
JANUARY 16.—By the *Minnetonka*=London:			
New York Commercial Co	*95,000		
Ed. Maurer	*56,000		
Henderson & Korn	*34,000		
Arnold & Zeiss	*25,000		
Meyer & Brown	*25,000		
General Rubber Co	*35,000		
Robert Badenhop	*9,000		
James T. Johnstone	*9,000		
Wallace L. Gough Co	*9,000		
Raw Products Co	*7,000		
L. Littlejohn & Co	*5,500		
In transit	*100,000	*409,500	
JANUARY 17.—By the *Argenfels*=Colombo:			
Meyer & Brown	*95,000		
New York Commercial Co	*95,000		
Ed. Maurer	*15,000		
L. Littlejohn & Co	*11,000		
William H. Stiles	*7,000	*223,000	
JANUARY 20.—By the *Philadelphia*=London:			
New York Commercial Co	*60,000		
Arnold & Zeiss	*50,000		
Ed. Maurer	*35,000		
Robinson & Co	*15,000		
Charles T. Wilson	*7,000		
Meyer & Brown	*7,000		
In transit	*40,000	*214,000	
JANUARY 20.—By the *Augusta Victoria*=Hamburg:			
Ed. Maurer	*25,000		
Rubber Trading Co	*11,000	*36,000	
JANUARY 20.—By the *Jeseric*=Singapore:			
Ed. Maurer	*80,000		
Malaysian Rubber Co	*50,000		
New York Commercial Co	*11,000		
L. Littlejohn & Co	*11,500		
Wallace L. Gough Co	*9,000	*161,500	
JANUARY 21.—By the *St. Patrick*=Singapore:			
Ed. Maurer	*50,000		
James T. Johnstone	*22,500		
L. Littlejohn & Co	*22,500		
Ed. Maurer	10,000	105,000	
JANUARY 22.—By the *Burmese*=Singapore:			
Ed. Maurer	*55,000		
L. Littlejohn & Co	*15,000		
New York Commercial Co	*15,000	*85,000	
JANUARY 23.—By the *Baroda*=Singapore:			
Ed. Maurer	*67,000		
James T. Johnstone	*33,000		
General Rubber Co	*22,500		
Malaysian Rubber Co	*22,000		
Wallace L. Gough Co	*11,500		
L. Littlejohn & Co	*11,000		
New York Commercial Co	*7,000		
Arnold & Zeiss	15,000	189,000	

GUTTA-JELUTONG.

		Pounds.
DECEMBER 23.—By the *Pathan*=Singapore:		
L. Littlejohn & Co.	255,000	
Wallace L. Gough Co.	70,000	325,000
JANUARY 22.—By the *Burmese*=Singapore:		
Haebler & Co.	225,000	
L. Littlejohn & Co.	200,000	
Wallace L. Gough Co.	200,000	625,000
JANUARY 23.—By the *Baroda*=Singapore:		
L. Littlejohn & Co.	325,000	
Haebler & Co.	70,000	
Wallace L. Gough Co.	30,000	425,000

GUTTA-PERCHA.

		Pounds.
DECEMBER 23.—By the *President Lincoln*=Hamburg:		
Robert Soltau & Co.		11,000
DECEMBER 23.—By the *Pathan*=Singapore:		
Wallace L. Gough Co.	45,000	
Haebler & Co.	22,000	
L. Littlejohn & Co.	45,000	112,000
JANUARY 22.—By the *Burmese*=Singapore:		
L. Littlejohn & Co.	22,500	
Otto Isenstein & Co.	22,500	
Wallace L. Gough Co.	22,000	67,000

BALATA.

		Pounds.
DECEMBER 24.—By the *Suriname*=Demerara:		
Yglesias, Lobo & Co.	25,000	
American Trading Co.	22,000	
George A. Alden & Co.	9,000	56,000
JANUARY 6.—By the *Mayaro*=Demerara:		
Ed. Maurer	30,000	
Middletown & Co.	11,000	
Frame & Co.	2,500	
A. Held	2,500	
Wessels, Kulenkampff & Co.	1,500	47,500
JANUARY 9.—By the *Coppename*=Demerara:		
G. Amsinck & Co.	27,000	
George A. Alden & Co.	9,000	
Wessels, Kulenkampff & Co.	4,500	
Middletown & Co.	5,000	
Gillespie Bros. & Co.	1,500	47,000
JANUARY 15.—By the *Maracas*=Trinidad:		
Yglesias, Lobo & Co.	5,000	
M. A. DeLeon	2,500	
Ed. Maurer	2,000	
J. P. Watson	2,000	11,500

BOSTON ARRIVALS.

	Pounds.
DECEMBER 2.—By the *Cambrian*=London:	
In transit (East Indian)	19,000
DECEMBER 9.—By the *Winifredian*=Liverpool:	
Arnold & Zeiss (Africans)	3,500
DECEMBER 16.—By the *Arabic*=Liverpool:	
Arnold & Zeiss (Africans)	5,500
DECEMBER 20.—By the *Indrani*=Singapore:	
L. Littlejohn & Co. (Jelutong)	1,350,000
DECEMBER 26.—By the *Pathan*=Singapore:	
Littlejohn & Co. (Jelutong)	1,040,000
Geo. A. Alden & Co. (Jelutong)	7,000
Arnold & Zeiss (Gutta-Percha)	2,600 1,049,600
DECEMBER 28.—By the *Canadian*=Liverpool:	
Arnold & Zeiss (Africans)	3,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—DECEMBER, 1912.

Imports:	Pounds.	Value.
India-rubber	10,759,429	$8,902,947
Balata	205,672	106,869
Guayule	613,956	279,589
Gutta-percha	20,628	10,785
Gutta-jelutong (Pontianak)	286,519	21,244
Total	11,884,204	$9,321,434
Exports:		
India-rubber	81,604	$66,465
Balata	11,423	6,511
Guayule	4,497	3,598
Gutta-percha	.....	.....
Reclaimed rubber	71,438	11,658
Gutta-jelutong (Pontianak)	.....	.....
Rubber scrap, imported	2,116,819	157,022
Rubber scrap, exported	532,401	58,886

EXPORTS OF INDIA-RUBBER FROM PARA IN 1912 AND FOR FIFTEEN YEARS.

[The figures indicate weights in kilograms.]

	NEW YORK.					EUROPE.					
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Zarges, Berringer & Co.—Pará / Zarges, Ohliger & Co.—Manáos	3,680,490	831,961	2,947,667	1,241,894	8,702,012	5,018,888	495,322	634,032	1,672,198	7,820,440	16,522,452
Ad. H. Alden, Ltd.—Pará—Manáos	1,963,033	551,801	1,059,896	808,964	4,383,694	1,619,573	279,130	629,064	455,183	2,982,950	7,366,644
General Rubber Co. of Brazil—Pará-Manáos	2,139,938	403,631	1,083,498	451,180	4,078,247	1,118,727	209,731	189,901	708,302	2,226,661	6,304,908
R. O. Ahlers & Co.—Pará / Ahlers & Co.—Manáos	839,680	135,867	385,149	332,651	1,693,347	1,431,795	119,551	365,437	432,267	2,349,050	4,042,397
Suarez Hermanos & Co., Ltd.—Pará	400	.....	.....	93	493	1,015,502	26,506	106,507	396,753	1,545,268	1,545,761
De Lagotellerie & Co.—Pará-Manáos	194,300	32,600	255,660	3,230	485,790	539,982	90,150	166,471	103,833	900,436	1,386,226
J. Marques—Pará	341,500	48,431	296,015	46,297	732,243	401,061	48,861	106,456	38,366	594,744	1,326,987
J. Marques Syndicate—Pará	.....	9,920	269,018	302,336	581,274	.....	.....	.....	2,800	2,800	584,074
Pires Teixeira & Co.—Pará	110,326	11,252	95,070	16,616	233,264	88,710	3,570	25,080	.....	117,360	350,624
M. Ulmann & Co.—Pará	.....	.....	.....	.....	.....	17,009	1,064	18,527	171,920	208,520	208,520
J. G. Araujo—Manáos	.....	.....	7,200	7,200	14,400	5,050	4,096	75,179	321	84,646	99,046
Nunes Sobrinho & Co.—Pará	12,580	3,060	22,440	4,240	42,320	38,360	3,104	6,576	734	48,774	91,094
S. A. Armazens Andresen—Manáos	.....	.....	.....	.....	.....	18,535	4,838	9,984	2,245	35,602	35,602
Sundries	132,406	5,652	66,771	59,997	264,736	91,648	11,826	81,607	43,310	228,391	493,127
	9,414,653	2,034,175	6,488,384	3,274,608	21,211,820	11,404,840	1,297,749	2,414,821	4,028,232	19,145,642	40,357,462
Itacoatiara, direct	1,800	.....	840	750	3,390	95,703	14,075	59,632	17,477	186,887	190,277
Iquitos, direct	61,435	1,103	14,407	62,333	139,278	1,069,699	102,748	348,241	1,154,688	2,675,376	2,814,654
Total, 1912	9,477,888	2,035,278	6,503,631	3,337,691	1,354,488	12,570,242	1,414,572	2,822,694	5,200,397	22,007,905	43,362,393
Total, 1911	7,686,680	1,571,375	5,173,230	1,669,596	16,100,881	11,230,371	1,503,869	2,504,439	4,519,039	19,757,718	35,858,599
Total, 1910	7,500,410	1,412,311	4,489,108	1,658,661	15,060,490	11,673,362	1,506,752	3,382,432	6,416,842	22,979,328	38,039,818
Total, 1909	9,439,722	1,767,310	5,784,170	2,655,778	19,646,980	9,832,613	1,372,221	2,950,626	5,649,763	19,805,223	39,452,203
Total, 1908	8,280,768	1,739,505	5,616,549	1,902,620	17,539,442	10,721,266	1,419,025	2,854,624	5,528,994	20,523,909	38,063,351
Total, 1907	8,012,592	1,863,775	5,149,312	1,580,657	16,606,336	10,783,787	1,358,264	3,190,982	5,574,783	20,907,816	37,514,152
Total, 1906	7,406,171	1,785,315	5,496,419	1,531,399	16,192,304	9,289,310	1,253,574	3,223,944	4,799,623	18,575,451	34,767,755
Total, 1905	7,173,463	1,518,444	4,921,222	1,647,216	15,260,345	10,052,634	1,291,703	2,498,516	4,363,690	18,656,543	33,916,888
Total, 1904	8,062,104	1,630,355	5,394,429	1,222,580	16,309,468	7,615,817	993,955	2,503,520	3,221,376	14,334,668	30,644,136
Total, 1903	7,248,065	1,621,827	5,029,646	1,133,857	15,033,395	9,156,872	1,167,956	2,659,748	3,076,971	16,061,547	31,094,942
Total, 1902	6,588,524	1,614,776	4,523,413	1,133,155	13,859,868	8,522,521	1,514,521	2,595,177	2,057,222	14,689,912	28,549,780
Total, 1901	8,027,727	1,926,505	4,271,456	1,325,290	15,550,978	7,939,010	1,556,358	2,605,553	2,638,599	14,739,520	30,290,498
Total, 1900	6,557,277	1,199,611	3,783,279	894,500	12,434,667	7,798,537	1,401,390	3,256,969	1,857,100	14,313,996	26,748,663
Total, 1899	7,583,405	1,319,349	4,023,710	951,854	13,878,318	6,410,647	1,030,459	2,527,013	1,583,572	11,551,691	25,430,009
Total, 1898	5,399,654	868,982	2,759,714	801,915	9,830,265	6,794,541	1,125,688	2,995,801	1,162,712	12,078,742	21,909,007

EXPORTS OF INDIA-RUBBER FROM MANAOS FOR DECEMBER, 1912 (IN KILOGRAMS).

	NEW YORK.					EUROPE.					
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	GRAND TOTAL.
Zarges, Ohliger & Co.	442,929	59,647	91,190	65,208	658,974	126,330	21,280	28,833	69,185	245,628	904,602
Adelbert H. Alden, Ltd.	151,961	56,407	35,739	38,429	282,536	.....	.....	.....	32,395	32,395	314,931
General Rubber Co. of Brazil	142,297	31,978	51,044	690	226,009	57,172	8,630	6,973	60,296	133,071	359,080
Ahlers & Co.	130,619	18,654	32,268	11,040	192,581	133,361	15,633	46,637	30,175	225,806	418,387
De Lagotellerie & Co.	.....	.....	.....	.....	.....	93,702	8,434	22,130	12,976	137,242	137,242
J. G. Araujo	.....	.....	.....	.....	.....	2,308	190	1,363	59	3,920	3,920
Semper & Co.	.....	.....	.....	.....	.....	876	.....	2,027	130	3,033	3,033
W. Peters & Co.	.....	.....	.....	.....	.....	3,552	1,130	4,886	2,041	11,609	11,609
Sundries	.....	.....	.....	.....	.....	960	.....	1,615	1,950	4,525	4,525
	867,806	166,686	210,241	115,367	1,360,100	418,261	55,297	114,464	209,207	797,229	2,157,329
Iquitos, direct	.....	.....	.....	.....	.....	155,691	5,233	60,510	100,368	321,802	321,802
Total, December, 1912	867,806	166,686	210,241	115,367	1,360,100	573,952	60,530	174,974	309,575	1,119,031	2,479,131
Total, November, 1912	1,229,203	235,852	578,500	175,958	2,219,513	1,315,795	94,271	335,463	459,173	2,204,702	4,424,215
Total, October, 1912	535,227	101,599	124,020	48,935	809,781	439,820	56,605	67,942	48,158	612,166	1,421,947
Total, September, 1912	479,558	101,508	98,538	82,074	761,678	650,509	89,416	99,081	174,999	1,014,005	1,775,683
Total, August, 1912	194,739	34,654	44,691	38,668	312,752	388,198	32,359	60,654	90,698	572,409	885,161
Total, July, 1912	177,787	47,976	46,874	36,951	309,588	131,295	13,120	59,558	216,591	420,564	730,152
Total, January-June, 1912	2,523,525	633,319	1,019,142	860,626	5,036,612	2,791,987	465,094	665,339	2,108,191	6,030,611	11,067,223

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Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are practically unchanged.

	Jan. 30, '13.
Old rubber boots and shoes—domestic	9⅞@10
Old rubber boots and shoes—foreign	9⅜@ 9½
Pneumatic bicycle tires	4¾@ 5
Automobile tires	9¾@ 9⅞
Solid rubber wagon and carriage tires	9¼@ 9½
White trimmed rubber	11 @11½
Heavy black rubber	4¾@ 5
Air brake hose	6 @ 6½
Garden hose	1⅝@ 1½
Fire and large hose	2 @ 2½
Matting	⅝@ ¾

Antwerp.

RUBBER STATISTICS FOR DECEMBER.

DETAILS.	1912.	1911.	1910.	1909.	1908.
Stocks, Nov. 1...*kilos*	707,545	634,262	568,148	735,616	604,170
Arrivals in December..					
Congo sorts	168,281	321,169	234,673	215,983	454,701
Other sorts	13,294	56,424	30,414	57,985	52,005
Plantation sorts	144,064	73,721	35,616	42,029	13,476
Aggregating	1,033,184	1,085,576	868,851	1,051,613	1,124,352
Sales in December	522,124	410,838	280,639	510,101	528,617
Stocks, December 31	511,060	674,738	588,212	541,512	595,735
Arrivals since Jan. 1..					
Congo sorts	3,229,978	3,175,581	3,105,357	3,492,332	4,262,531
Other sorts	144,585	489,771	399,641	865,349	652,398
Plantation sorts	1,402,841	670,461	553,678	328,277	120,415
Aggregating	4,777,404	4,335,813	4,058,676	4,685,958	5,035,344
Sales since January 1	4,930,882	4,249,387	4,011,974	4,740,181	5,445,503

RUBBER ARRIVALS FROM THE CONGO.

December 17, 1912.—By the steamer *Anversville*:

Bunge & Co	(Société Générale Africaine) *kilos*	45,700	
do	(Comptoir Commercial Congolais)	7,700	
do	(Chemins de fer Grand Lacs)	2,200	
do	(Forminière)	2,800	
Société Coloniale Anversoise	(Haut Congo)	7,870	
do	(Cie. Franc. du Haut Congo)	10,040	
L. & W. Van de Velde	(Cie. du Kasai)	80,000	
do	(Comfina)	7,500	
do		2,700	
Charles Dethier	(American Congo Co.)	2,300	
Willaert Freres		5,000	
Divers		17,300	191,110

January 7, 1913.—By the steamer *Leopoldville*:

		Kilos.	
Bunge & Co	(Société Générale Africaine)	22,600	
do	(Chemins de fer Grands Lacs)	6,000	
do	(Cie. du Kasai)	82,500	
do	(Comptoir Commercial Congolais)	8,300	
do	(Alberta)	1,900	
do	(Comfina)	19,300	
do	(Forminière)	3,200	
do	(Intertropical)	20,700	
Société Coloniale Anversoise	(Lomami)	3,900	
do	(Cie. franc du Haut Congo)	240	
do	(Comminière)	3,900	
L. & W. Van de Velde	(Uelé)	8,550	
do	(Velde)	470	
Willaert Frères		13,000	194,560

Plantation Rubber From the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to December 23, 1912 and 1911. Compiled by the Ceylon Chamber of Commerce.]

	1911.	1912.
To Great Britain *pounds*	3,374,226	7,377,602
To United States	1,807,085	4,267,949
To Belgium	729,174	1,178,666
To Australia	47,547	232,386
To Germany	48,254	195,138
To Austria	6,648	73,660
To Japan	56,000	68,415
To Canada	18,871	22,078
To France	117	11,568
To Italy	8,460	6,378
To Russia	.....	2,288
To Holland	12,893	2,282
To India	196	700
To Norway and Sweden	.....	39
To Straits Settlements	3,216	.....
To Africa	35	.....
Total	6,112,722	13,439,149

[Same period 1910, 3,074,783 pounds; same 1909, 1,332,055.]

TOTAL EXPORTS FROM MALAYA.

(From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.)

To	Singapore, Dec. 6.	Penang, Oct. 31.	Port Swettenham, Nov. 15.	Total.
Great Britain *pounds*	10,054,739	7,341,875	14,784,869	32,181,483
Continent	328,328	16,129	2,002,600	2,347,057
Japan	483,173	.....	.....	483,173
Australia	83,267	.....	.....	83,267
Ceylon	2,217	216,827	759,815	978,859
United States	2,737,939	933	2,081	2,740,953
Total, 1912	13,689,663	7,575,764	17,549,365	38,814,792
Total, 1910	3,512,787	1,967,100	7,224,781	12,704,668
Total, 1909	2,348,271	1,872,601	2,138,262	6,359,134
Total, 1911	6,009,206	4,057,932	10,221,779	20,288,917